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Professional Amiga User MAGAZINE

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VICTOR

Produced using the Commodore Amiga 2000,
ASDC Professional Studio and Sharp JX-300 Scanner

Exposed

NewTek's VideoToaster

Evaluation

Promotion

Desktop Video

Setting Up Business

The Amiga 3000

An in-depth review

Creating a Sculpt-4D Animation

*Canon's Ion Camera
A Perfect Partner*

* Recommended Retail Price

GVP Announces a Technological Breakthrough...

SERIES IITM THE NEXT GENERATION

in SCSI and RAM Controllers for the A2000TM

IMPACT
Series II

GVP's New **SERIES II A2000 SCSI and RAM Expansion Controllers** provide the ultimate hard disk and RAM expansion solution for the A2000. Choose from two new models:

The Series II A2000 SCSI "Hard-Disk + RAM-Card"

- State-of-the-Art integration packs a high performance SCSI controller, 8MB FAST RAM Expansion and a 3.5" hard disk drive INTO A SINGLE A2000 EXPANSION SLOT!! Saves BOTH a valuable expansion slot and a peripheral bay!
- Incredible SCSI hard disk performance achieved through GVP's innovative new custom chip design, which provides DMA performance and unique direct dual port memory access to FAST RAM, eliminating typical DMA side effects under heavy graphics load.
- Easy-to-install SIMM memory modules allow flexible memory configurations from ZERO through 8MB. Supports 6MB FAST RAM configuration for BridgeBoard users.
- NEW **FAAASTROMTM** SCSI Driver offers optimum performance and includes such features as:
 - ✓ Supports virtually any SCSI device including, CD-ROMs, Tape Drives, IOMEGA Bernoulli drives, etc.
 - ✓ Fully implements SCSI Disconnect/Reconnect protocol, allowing overlapping SCSI commands to be executed.

- ✓ Fully implements Commodore's Rigid Disk Block (RDB) standard as well as the new DIRECT SCSI interface standard.
- ✓ Removable media drive support. Automatically senses cartridge changes and informs AmigaDOS, ensuring safe and reliable use of removable media SCSI drives.
- ✓ Allows Direct AUTOBOOT from Fast File System Partition.
- New **INTUITION COMPATIBLE SCSI** installation and "tuning" utility included. Major features include:
 - ✓ ICON and gadget based INTUITION interface.
 - ✓ Bad Block Remapping of hard drives.
 - ✓ Auto or manual hard drive partitioning and AmigaDOS formatting.
 - ✓ Read and modify existing RDB parameters on hard disk.
 - ✓ Simplest and Easiest SCSI installation in the industry.
- Low parts count (through VLSI Integration) EQUALS: lower power, higher reliability, longer life and ultimate PRICE/PERFORMANCE! See TRADE-UP offer.

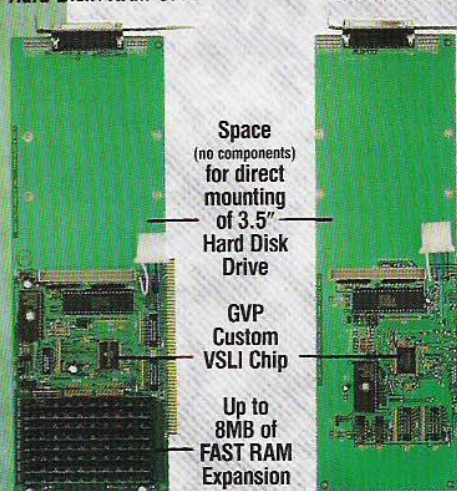
The Series II A2000 SCSI "Hard-Disk-Card"

- Same as above but without the 8MB FAST RAM capability.
 - Specially designed for those users who don't need memory expansion but still need maximum hard disk performance at a budget price.
 - **UNBEATABLE VALUE.** See \$199 trade-up offer!
- GVP's New **FAAASTROM** SCSI driver and installation software is also available as an upgrade kit for GVP's original IMPACT SCSI controllers, for ONLY \$89.95. Offers major performance increase over previous GVP AUTOBOOT EPROMs.

New Series II 48MB Removable media hard disk drive. GVP now also offers the NEXT GENERATION removable media hard disk drive which offers increased capacity (48MB formatted) and major technological advances in cartridge air flow filtering design and robustness. Call for details.

Hard-Disk+RAM-Card

Hard-Disk-Card



SCSI TIMES

The ULTIMATE Trade-Up Offer???

GVP today introduced its new Series II product line and announced a bold new trade-up program, which is certain to further bolster GVP's dominant market share in the Amiga hard drive market.

Details of GVP's new TRADE-UP program are as follows:

- For \$199 plus \$6 for shipping (Aus only) end-users can trade-up to the new GVP Series II SCSI "Hard-Disk-Card" (without drive) by simply sending in their present SCSI controller (from ANY manufacturer) together with a money order or certified check, payable directly to GVP.
- All trade-in controllers must be sent to GVP FREIGHT PREPAID.
- Owners of any GVP or Commodore SCSI controllers, are eligible for an additional \$10 rebate, if they trade-in a FULLY FUNCTIONAL and working controller. These owners need to submit a certified cheque/money order for \$195 only.
- For an additional \$89, existing controllers can be traded-up to the new Series II "Hard-Disk + RAM-Card," which includes the 8MB FAST RAM expansion capability, populated with ZERO RAM.

"Let's Standardize"

GVP

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Video-Toaster

Will we ever see a PAL version of this amazing Amiga add-on? 8



Animation

Peter Ward explains just what goes into making a full ray-traced animation using the Amiga (Peter designed the Amiga 3000 on our front cover) 29

FRONT COVER

Ray traced in Sculpt 4D (850 x 1150 pixels in 24-Bit mode), colour separated using The Art Department and ReSep. Model designed by Peter Ward. Scene arrangement by Adam Rigby. DTP by Andrew Farrell.

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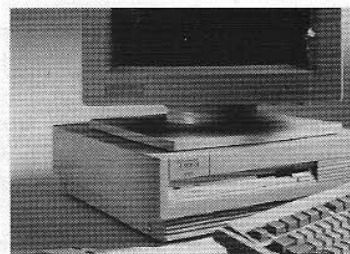
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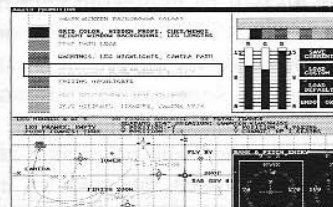
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Tim Strachan asks the question... is it really faster? 23



Promotion

New life for Videoscape 2.0.
Dennis Nicholson examines the intuitive alternative to creating motion paths. 12



First Word

Starting this issue, Professional Amiga User is officially bi-monthly. Our first publication was a huge success, with letters arriving from all over Australia containing positive suggestions, congratulations and encouragement.

To all those who also responded to our reader survey, a special thanks. Your comments were all compiled and taken into consideration in preparing our second issue.

There is now no doubt there is a professional group of Amiga users in Australia who are looking for serious support.

People who produce video output, printed page, manage a business or produce creative works using the Amiga all responded enthusiastically to the magazine. No doubt all will be impressed with the improved layout of this issue, along with the quality of both black and white and colour image reproduction.

Our second issue proceeded at a far more civilised rate and we encountered less problems with lyotronic machines and desktop publishing programs. We still eagerly await the day *Professional Page 2.0* arrives - along with some more fonts.

There are a few blind corners Amiga has yet to turn in the world of publishing. However, we are well on the way to producing a world class magazine when it comes to Amiga publications. Wouldn't it be nice to have an Australian magazine exported to the United States for a change!

Locally, the computer community as a whole is taking Amiga more seriously. The SMPTE show

at Sydney's Show Ground, at which Commodore won the best stand award and launched the Amiga 3000, proved a great inspiration for many local developers and users.

Unfortunately there has been little follow up of the interest created within the video industry. In the United States, Newtek's Video Toaster has created an absolute storm around the Amiga as a video production tool. Local development of similar such radical products is also happening.

Gary Rayner, a talented young guy from Byron Bay, has developed a 24 Bit display system which enables 16.2 million colours to be output on a standard 1084S monitor. Applications for this photo-quality system are numerous.

As a Paintbox, it would make the Amiga over 75% less expensive than an equivalent MS-DOS based system. At the moment, images need to be converted to the device's peculiar format using a small utility - however this inconvenience is certainly worth the results.

Gary is working on a full-blown paint program for the Colour Burst system. Memory and Storage Technology, an Australian Amiga developer and manufacturer, are currently reducing the design to a VLSI ready for mass-production. This product could become a popular consumer item, especially for owners of *Digiview* - of which there are thousands.

For desktop publishing, the 24



Bit display rivals the Apple Mac II which is over twice the price. There are also applications in video titling, animation, graphic design and photography.

Gary, who could rightly be described as a very gifted young person, hopes the end product will sell for under \$500.

Andrew Farrell

Professional Amiga User Magazine would like to thank Commodore Business Machines, Sharp, ASDG and Canon for their support. Also, thanks to Chris Jackson at Lyno's Desktop Publishing for Postscript output, advice and long suffering!

Professional Draw 2.0

Premier illustration package with new features, including:

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- Support for AGFA Compugraphic fonts
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- *Office File*, an easy-to-use database

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- **MOVIESETTER:** Video compatible animation with stereo sound -- "the animation program to have" (AMIGA WORLD, April, 1989)

Gold Disk Type

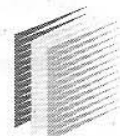
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Gold Disk is pleased to announce the appointment of Dataflow Computer Services as our exclusive Australian distributor. That means you'll get the quality and service you expect at the prices you need. To upgrade from previous versions of Professional Page, PageSetter, or Professional Draw contact Dataflow Computer Services Pty. Ltd., 134 Barcom Avenue, Rushcutters Bay, NSW 2011, Tel. (02) 331 6153.



GOLD DISK

This ad was produced exclusively with Gold Disk software and the Amiga.

CDTV Support Grows

Several major American and European software developers are preparing to jump on the CDTV bandwagon. CD-Rom production firm, Next Technology, are working on titles to accompany the UK launch, including a special

welcome disk which comes with the system. Next Technology will also be working closely with other companies to help produce discs quickly

through its unique Pressed for Time CD-Rom production service.

Mindscape are also reported to be working on CDTV projects - and not all will be games. Another company, Arcana, are developing a product which they say will fully exploit the multi-media potential.

We should see material from these companies starting to surface over the next three months. Many UK game companies are gearing up for full-steam development including CRL, Impressions, Virgin, Lucasfilm and Mirrorsoft.

Ocean and Maxis are supposed to be working on a new *Sim City* sequel called *Sim Earth*. Sounds exciting!

So, it looks like CDTV technology will really materialise. Locally, we have received no further communication regarding the CDTV launch.

Ariadna Software, currently producers of a high-end Amiga authoring package, are adapting their software to handle CDTV requirements. Local developers wishing to produce CDTV products should contact Gary Mason at Commodore Business Machines on (02) 427 4888.

Michtron's AMIGA Fax Modem

Michtron is now shipping Fast FAX in the USA, an external Fax Modem for the Amiga which connects by means of the serial port and provides full send and receive facsimile operation. Fax transmission can be scheduled for the early morning hours when STD rates are low.

Transmitted documents can include IFF images and ASCII text mixed together. There is no longer any need to print out incoming or out-going faxes. Although received faxes are still only as good as the sending machine, faxes received by your clients from the Amiga will look better than usual!

This is because the transmission consists of ASCII text rather than one giant bit-mapped file. The font is reproduced by the receiver's fax machine, making for a clearer, more readable transmission. For fax reception, Fast Fax has a small window which sits on your Workbench responding to incoming transmission. A screen flash indicates something has just landed in your in tray.

In our office, fax transmissions are one of the last remaining forms of communication where we rely on paper. After discovering the Michtron fax in U.S. magazines, we contacted several local distributors to encourage them to look into this product.

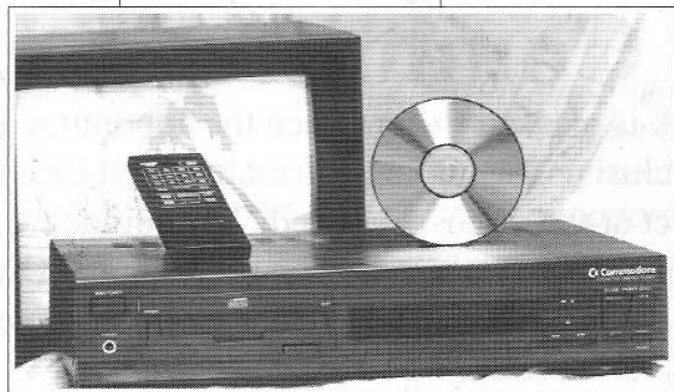
Unfortunately, none had plans to import the unit as yet, however all were interested in the response to the unit. If you would like to register your interest, please contact *Professional Amiga User* magazine on (02) 879 7455 or by Fax on (02) 816 4714. Recommended retail price is US\$549.95. You can contact Michtron direct on (313) 377-8898.

A-Max II Macintosh Emulator

Amiga 2000 owners will be able to access their hard drive partitions and use *Apple-Talk* networks thanks to the new *A-Max II* Apple Macintosh emulator - the PLUS version of which slots into the 2000.

According to early reports, many more products will now run, however some copy protected programs and many games will not.

Progressive Peripherals are now planning a full *Apple-Talk* network for Amigas. This will enable Amigas to link into existing *Apple-Talk* nets or operate as a purely Amiga system at double the speed. Amiga always does it better!



Professional Page Templates and Design Guides

► Give your desktop published documents the professional look by using Gold Disk's *Professional Page Templates and Design Guide*. The Templates in this package and the accompanying Design Guide, were prepared by top New York designer Jon Steele.

Your documents will demand greater attention and your message will be

delivered more effectively and with style.

The *Template* disk contains over 50 classic designs providing attractive solutions to the following needs - advertisements, newsletters, business cards, envelopes, flyers, brochures, reports, layout grids.

All of the layout elements are defined - type, specifications, graphic

boxes, wrap around text, rule lines, crop marks and more. Just flow in text and graphics and the job is done.

The *Design Guide* offers valuable suggestions on how to improve your desktop designs. Each template is illustrated, highlighting the most appropriate applications. Learn techniques for optimizing the impact of headlines and graphics. A glossary of contemporary design terms is included as well as printed exam-

ples of available fonts.

Take full advantage of your *Professional Page* software with the *Professional Page Templates and Design Guide*. One big hassle with many of the templated is that they adhere to American standard paper sizes, not A4! □

Pp

Tabaret Bets a Million on Amiga

► In a deal with Commodore Computers reputed to be worth over a million dollars, the Victorian Totalizator Agency Board (TAB) has purchased the latest in Amiga computer technology for its soon-to-be opened "TABARET".

The TAB believes that TABARET will revolutionize gambling, not just in Victoria, but hopefully around the world.

The concept involves the establishment of high class gaming and wagering centres offering food and beverage facilities. Traditional TAB wagering will be available via self-service terminals (SST's) where patrons place their own bets; however the majority of gaming equipment in the TABARET centres will be Player Activated terminals (PAT's), which will enable patrons to play a variety of video based sports games with random outcomes.

Both SST's and PAT's are based on Commodore Amiga 2000 computers, fitted with a hard disk drive and colour monitor.

Player interaction is not via a traditional keyboard, but touch sensitive screens. TAB research showed that a touch screen would be more popular with patrons than any keyboard.

With SST's, patrons will also be able to enter their bets using a mark-sense card.

TABARET will be a "cashless" betting environment where all transactions will be made by the use of electronically encoded plastic cards purchased for a cash value decided by the patron. Any winnings will be automatically credited to the card which may be redeemed for cash at the end of a patron's game play session or retained for further use.

Damien Brignell, Vic.

TAB's Computer Systems Assistant General Manager and Director, said that the Amiga 2000 computer was, and still is in their opinion, the only "off the shelf" computer system capable of performing the difficult graphics and sound processing required in the terminals.

"The Amiga 2000's multi-tasking, graphics capability and sound capability were important in our choice," he said. Multi-coloured graphics, intended to attract players are a major feature of TABARET.

Using the Amiga computer as the terminal also gives immense benefits in controlling the overall TABARET operation.

Cash handling is confined to cashier terminals (some of which are based on Amiga computers), so the many physical and audit measures that are common in Casinos are redun-

dant in the TABARET environment.

"...Victorian TAB [was chosen] to manage the TABARET operation, and all the terminal software has been developed by the TAB itself," said Mr. Brignell.

It is expected that the success of the first TABARET, to be opened in Melbourne before 31 July, 1990, will create a demand for similar TABARET centres in Melbourne and elsewhere in Victoria.

"TABARET also has a potentially huge overseas market," said Mr. Brignell. "Initial inquiries from overseas have been very encouraging."

Once proven successful in Australia, TABARET technology using the Amiga computers could be sold to other countries. □

Graphics Update

On-Screen

Imagine!

Imagine is the next generation in rendering and animation systems for the Amiga. With *Imagine*, a complete rewrite of *Turbo Silver*, it will be possible to perform functions on the Amiga that have until now been left to much larger platforms.

With the use of 24 bit rendering techniques, Amiga owners can now compete in the world of professional animations at much lower cost than has been available to date.

Features include Full QUAD View Editor which allows each view to be expanded for full screen use as well as zoom in/out functions. Forms can manufacture an object from the cross sections of the different isometric view of any object by the use of 2D drawings.

The Detail editor allows you to manipulate in great detail any and all of the faces, edges and points of each object created in Forms or Detail. The Detail editor also allows the use of Boolean Math functions to create even more unique and interesting objects.

The Animation Editor allows you to have complete control over every aspect of the animation capabilities of the system. To date the majority of systems allow for only simple Geometric movements. *Imagine* goes many steps further in the inclusion of new techniques providing life like motion.

Cycle creation and the use of a simple stick figure with joints and segments, the user can create human-like qualities using true Key Cell function.

All one has to do is to move the segments where they should be in the next chain of the movements scheme and *Imagine* fills in all of the gaps or "In-betweens". This technique is much like those used by animation studios which incorporate hundreds of artists to perform the see functions.

Imagine treats each object as an actor, each set of animation cycles as a movement and puts all of these features together on the STAGE. The metaphor of using the Theaters as the basis for *Imagine* makes using the package much easier.

The main problem with most systems that use 3D as their basis is the complexity of the user interface. In the past the user could spend hours of time just creating a simple Walk Cycle, moving this actor around his 3D space was even more difficult.

Imagine breaks the

bounds of normal movements techniques by letting actors move around the stage, interacting with props, other actors and the 3D world at large. The user does not have to worry about cell count or any other aspect of the animation. Simply tell the actor where to go and what cycles to use, *Imagine* does the rest.

Object features include morphic change, animation of all attributes of the object including colour, specularity, texture etc.

Full IFF wrapping capabilities both in 12 and 24 bit mode are also included as are texture mapping and complete control over colour specularity, roughness refraction and reflection size/scale.

Editor features include easy access to any and all points, faces and edges and single IFF bit plan extrusion.

Real time rotation, scale and movement of all objects and zoom in and out in any screen are also available. Rendering methods are 12 and 24 bit, colour or black and white wire frame with hidden line removal, primitive solid modeling, complete solid modeling and full trace modeling.

Imagine will be distributed in Australia by Computermate. Recommended retail price \$449.

□

Video Tools on Tap

Neriki are just about to release a range of computer software for the Amiga which multi-tasks with other programs and is very much video related.

The first package will be called "*Video Tools on Tap*" and is due for release by the end of September. It is estimated that it will sell to the end user for around \$100.00 AUS.

Fordray is proud to announce a new Neriki software package that will change the whole concept of desktop video.

Due to be released in September, Neriki *Video Tools on Tap* will offer the user many features that in the past were not possible with computer software.

Designed to multi-task with other software and any model Amiga, *Video Tools on Tap* offers a variety of much needed utilities and effects. These can be called up by a special HOT KEY combination.

It runs in the background (when multi-tasked) without affecting the display until you tell it to do so. No graphics memory is used when it is inactive.

Video Tools on Tap also has an AREXX port so

Graphics Update

that it can perform automated tasks such as converting standard images to full overscan etc. It can also be used as part of an automated slide show. The user can also configure the *Video Tools on Tap* display to suit their particular genlock or encoder.

Some of *Video Tools on Tap* features are SMPTE (NTSC) and EBU (PAL) colour bars on request, blue colour bars, black screen, grey scale on request, fade up - fade down (can be timed), vertical and horizontal flips, screen overscan, vertical and horizontal adjustments from keyboard, edge detect, supports IFF, interlace toggle, audio tone.

The instruction manual supplied with *Video Tools on Tap* is unique. It offers video set up procedures for the user who is not familiar with this side of the industry. It also offers explanations of the

colour bars, how to read them and adjustments so that the final video product has a professional result.

This package has given new dimensions to the Desktop Video application. It is now possible for all users of computer in video to produce a professional product without the frustrations of the past.

For further information, please contact John Cole, Fordray Pty. Ltd., P.O. Box 1265, Orange NSW Australia. Telephone international, 61-63-62-9901, Australia (063) 62 9901. Fax, international 61-63-8675, Australia (063) 62 8675.

Title Page

Title Page is a new video titling package. It will finally allow you to create screens full of effects once only possible in your imagination. If

the 'look' you want is not in our package, simply create it. Modify text, effects, patterns, brushes, even backgrounds. It that's not enough, add a touch of fantasy with rainbow letters. It what you use isn't what you need, come experience *Title Page*.

Title Page handles any level of user selectable overscan. Even supports non-overscan overscan for hard drives with excessive DMA contention. Creates copper display lists allowing thousands of extra colours per screen. Use any Amiga compatible font or colourfont. We supply you with 9 regular fonts in 3 sizes each PLUS four colourfonts in 2 sizes each.

Apply an effect to brushes, text, or images. If the 40+ effects included aren't enough, create your own with our GRAPHICAL effects edi-

tor. Maintain hundreds of prefs & effects and call them back at the press of a key. Our effects include outlines, extrudes, shadows, embosses, glows, crosses, neons, stars, glints, punches, and 35 more.

Execute ARexx commands from the keyboard or scripts. *Title Page* understands over 65 different commands. This allows you to add and modify the normal features available from the menus. ARexx compatible slide show player included, with 45 different transitions.

All this functions properly on any 512Kb Amiga. Don't worry though, we remembered everyone's needs are not the same, so we also include charged up versions for users with 1 Mb of chip RAM.

Title Page by Eschalon Development is available from Computer-mate Products. □

WHAT IS MEGADISC?

MEGADISC is a unique disk-publication designed to help beginners and veterans use their Amigas more productively and enjoyably. Dating from the early days of the Amiga, Megadisc is put together by long-term users who really know the machine and who can communicate that knowledge in a non-technical but informative way. Everything on Megadisc runs with a click of the mouse, and requires no special knowledge or equipment to run - except your Amiga. Anyone can use Megadisc profitably - students, hobbyists, teachers, Amiga veterans, and business people.

FREE CATALOGUE-ON-DISK - PUBLIC DOMAIN COLLECTION

Ask for our free Catalogue on disk. The Catalogue describes the contents of the various issues of Megadisc, gives information on how to make orders, and contains a full listing of our collection of public domain disks - over 1600 disks full of software, graphics, animations, source code, and much more. We have the best collection in the southern hemisphere. All these disks are available for ordering at \$5, or \$4 if you subscribe to Megadisc - no postage costs. Once you have a catalogue-disk, you can send it in at any time for updating.

WHAT IS MEGADOS?

Megados is a complete manual on disk for the Amiga. Designed with the same easy to use interface as Megadisc, Megados will show you how to use the CLI and the Workbench, with tutorials, examples, and full explanations. If you want to go more deeply into using the Amiga, Megadisc supplemented with Megados is the way to do it.

ORDERING

MEGADISC can be obtained as single issues, or via subscriptions just like a paper magazine - every subscription includes some free Public Domain disks. Back issues contain a wealth of useful information, and you can check their contents on the free Disk-Catalogue.

FOR MORE INFORMATION: Call (02) 9593692

FOR ORDERS ONLY: Call Toll-free 008 227418

ORDER BY FAX: (02) 9593525

ORDER BY MAIL: P. O. BOX 759, Crows Nest 2065.

NEWTEK's Video Toaster *Exposed*

After numerous long hours contributing to OTC profits, and a last minute facsimile packed with all the facts, Nathan Cochrane managed to compile this report on the much applauded Newtek Video Toaster.

At A Glance

- ✱ Dual 24 bit 16.8 million colour frame buffers
- ✱ 2Meg of fast video memory for frame store
- ✱ Character Generator
- ✱ Color Processing
- ✱ Real time DVE controller
- ✱ Production switcher
- ✱ Preview output
- ✱ Linear keyer
- ✱ Digital still store
- ✱ Frame Grabber
- ✱ Seven inputs
- ✱ 2D paint and 3D modeling software

► Newtek's Video Toaster packs a mighty wallop in the field of professional video production. At a time when the Amiga's predominance in the graphics and animation sectors is under rigorous attack from PCs and Macs, the Video Toaster is set to propel it again to prominence, shattering the opposition with its combination of exceptionally low price, high broadcast standards and incredible flexibility.

Due for release in the United States about now, it has a stunning array of features that look like making a lot of the professional and industrial video equipment around today obsolete. It truly brings broadcast (and near broadcast) quality closer to the consumer - home movies will never be quite the same! However it also promises to be well received by small video houses, production companies and ad agencies in this country.

Hardware

The dual frame buffers are the heart of the system providing the gateway by which the information and graphics are passed to the monitor and/or recording VTR.

The character generator permits broadcast output via the frame-buffers in 16.8 million colours. The NTSC version generates 35ns text with variable drop and cast shadows, outlines and transparent shadows. The Toaster can store up to 100 pages of text online with graphic separators and full spectrum background colour gradations. It comes complete with 25 fonts and further fonts are user definable. Fea-

tures variable smooth crawl and scroll at up to 60 fps.

Colour processing can be done to create colour negs, monochrome, solarisation, posterisation, colour vignettes and photographic filter effects.

A DVE (digital video effects) engine allows real time 60 fps (arbitrary) geometric manipulation of live video with effects such as spins, flips, tumbles, blinds, squeezes, zooms, splits, trajectories, push on/off, digital trails, mosaics, montages plus hundreds more. The 14.31818 MHz sampling rate ensures that these will all be smooth transitions with the minimum of blockiness.

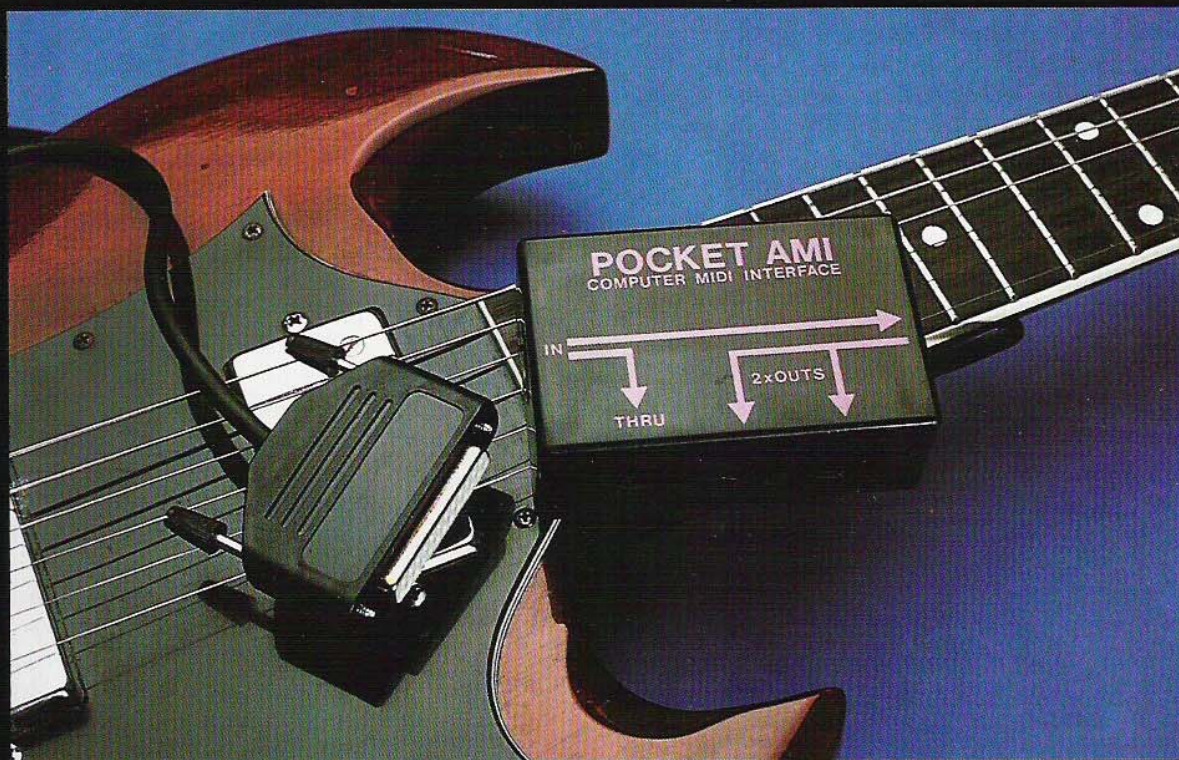
The production switcher allows fades, wipes, dissolves, key and colour effects between any of the seven inputs. This includes four synchronous live video sources (such as cameras or VTRs), two frame buffers and one matte generator (background colour).

Camera shots or frame buffers can be viewed prior to transitions with the preview output facility, being in addition to the main video output.

A built in linear keyer allows the overlay of live video sources or combining live video with a frame buffer. This boasts a stunning 70 ns resolution @ 16 steps or a reasonable 280 ns resolution @ 256 steps.

Up to 1000 video still frames can be stored to disk with the digital still store. One buffer can be loading while the other is displaying (<3 secs load time per 24 bit image is

POCKET AMI



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boasted by Newtek). The Toaster itself can store 1, 2, 4 or 8 fields (expandable) in memory which can then be routed to the switcher or any of the other effects engines for viewing.

The frame grabber can capture at present up to eight consecutive NTSC fields (four frames) to the Toaster's memory at 1/60th of a second each. Frames may be stored to disk with or without motion and later recalled with the still store.

The Toaster can handle seven inputs; four synchronous live video sources, input from the two frame buffers and a matte (background) generator. After the first video input, however, time based correctors (TBCs) are required on each of the other three inputs for syncing the four to the Toaster's timing.

The built in sync generator permits sync, blanking and burst internally regenerated. The reference video is a composite colour or black burst on video input #1.

Probably the single most impressive feature of the Toaster is its highly integrated design that allows for almost endless creative possibilities. For instance a page can be rendered with the character generator, keyed in over live video then spun off the screen as it is fading to one of the frame buffers with a vapour trail all in 16.8 million colours!

Another beautiful feature of the toaster is its user interface. All the features are clearly and neatly arranged in logical order in such a way that all the main functions are easily accessible. For those familiar with production units such as the MX-12, Merlin or similar, you will find the customary T-bar in evidence, a nice touch. A small but adequate status display keeps you informed of what is happening and what effect is being conducted. As

we could expect, the NTSC version conforms to all NTSC RS-170A requirements.

Software

Even before the Toaster is released there are two software packages waiting in the wings to support it - both naturally by Newtek. The first is bundled with the Toaster and is from Allen Hastings of *VideoScape* fame. Called *Lightwave 3D* it has possibly the single most impressive host of features to be found on any 3D package on the market today.



Using a similar 3D 'through-the-cockpit' view as Caligari it allows real time movement of objects in the 'world'. Animation from script files can also be viewed in real time as well as any of the other functions such as zoom, pan, tilt, object transformation.

Lightwave uses a similar method to Caligari to build objects known as construction by primitives. Objects are created with the aid of already mapped basic primitive shapes. These are then combined to form virtually any shape. One drawback to this technique however, is that many complex objects cannot be created at all or not to exact specifications. It also means that often

there can be literally thousands of points and polygons that are never seen but exist purely because a part of them is needed. Complex architectural 'walk-throughs' are also virtually impossible.

To alleviate this problem, the familiar point creation method of construction, common to most 3D packages such as *Sculpt*, *Silver* and *VideoScape* has also been employed. Numeric input a la *VideoScape* of objects is also provided for high precision modeling requirements.

Another highly desirable feature are the flexible lathe and extrude tools that allow you to create objects such as vases, fonts, and even entire cities from architectural plans.

A library of fonts and objects is also included to get you started, which is just as well as the Interchange module could be a while in coming.

Animation is also supported without an optional module permitting key frames and tweening, as well as linear or spline based motion paths.

Heirarchical attachment of lights, camera and objects. Heirarchies are useful, for example in explaining how an arm moves. The shoulder has heirarchy over the elbow, similarly the elbow over the wrist, wrist over the thumb and so on. When the shoulder moves, so does the rest of the arm, even when the elbow does, hence moving the wrist and finger and so on. Natural looking movements can be easily created without having to worry about where everything is at every step of the way.

Naturally *Lightwave* renders to the 24 bit frame buffers, either using phong shading or with full ray tracing capability. Surface attributes include, variable colour and lumi-

nosity; diffuse and specular reflection with variable glossiness and smooth shading.

A host of texture mapping attributes include: surface colour mapping, environment mapping, transparency mapping, bump mapping. Texture map sources can include: planar, cylindrical and spherical image projections; any resolution images; checkerboard & grid textures; fractal noise, marble, wood and ripple textures.

Lighting is obtained by a mixture of multiple coloured light sources that are either directional, point sources with variable intensity fall off and spotlight sources.

Batch image processing is supported in a 'set and go' environment, especially useful for single frame recording to VTRs such as Sony's 5850 through a Lyon-Lamb arrangement or similar.

ToasterPaint is the 2D paint package for touching up 3D images, carrying on post production work on grabbed images and general creative work. Anyone who has used *Digi-Paint* should have no problems at all in utilising this powerful program, as the interface and general 'feel' looks to be almost identical.

Features

- * Anti aliased texture mapping, warping and rotation.
- * Drawing tools - ellipse, rectangle, area fill, polygon and more.
- * Variable transparency, smooth shading and blending.
- * Eleven drawing modes inc. rub thru, blur, range, lighten, darken.
- * Text rendering with optional anti-aliasing.
- * Cut & paste with any tool or shape.
- * Magnify.
- * Key text from character generator over graphics.

Cost

So how much is all this going to cost? The Toaster retails in the US for \$US1595.00. Quite a remarkable achievement and nothing short of an extraordinary price. On most major platforms that do this sort of work you couldn't even put a downpayment on the software alone for this price!

Future Development

There are plans for third party development for the Toaster. One option being looked into at the moment is a Synthesis Interchange module for conversion from *Lightwave* to other 3D packages such as *Sculpt*, *Pagerender 3D* and *Silver* for instance.

At present none of the other 3D modeling programs will work with the Toaster's frame buffers directly, but according to Newtek, you will be able to render the images to disk (if the software permits this) then display the 24 bit file later on the Toaster.

As all of the DVEs are software controlled, there are plans to release "at some time in the future" data disks with enhanced DVEs as well as other options. One of these options is a "construction kit" for DVEs that are user definable. No release date on these is available as yet, though they are certainly possibilities being looked into at the moment.

Also proposed are expansion memory cards and accessories for the Toaster to expand its already incredible capabilities even further.

According to Robert Blackwell, Newtek's Product Manager, "The Toaster represents the beginning of a new generation of video products for the company. The Toaster being just the first in a long line."

Conclusion

It is no small boast to say that this little card with its huge capabil-

ities could forceably replace or make redundant the better part of \$100,000 of conventional video and PC based equipment! It is quite possible that within the next year a high end, broadcast quality, graphics workstation could be set up for less than 1/10th of the price it costs today.

However there is a catch, don't expect to run out to your corner computer shop and buy one for some time. Newtek are not surprisingly having problems supplying existing demand for the NTSC units. According to Robert Blackwell, it could be between 12 months and 3 years before a PAL version is ever released, depending on comparative demand.

Also the Toaster is designed to work with broadcast and near broadcast quality equipment, so while it has a VHS price tag, it is definitely aimed at the industrial to broadcast end of the spectrum. So to make the best use of it, it needs to be used with those VTRs, TBCs and support equipment (vectorscopes, SFRDs, transport controllers etc) - not exactly within the reach of the run-of-the-mill home hobbyist. But for small to medium production houses, tertiary institutions, corporate in-house production facilities and TV stations, it will be an absolute boon, especially in these times of economic austerity in the media industry.

The author wishes to thank: Lisa (Customer Service Officer), Robert Blackwell (Product Manager) both from Newtek - and David Jacobs (Director) at Creations Video : for their help in compiling this article.

□

Promotion

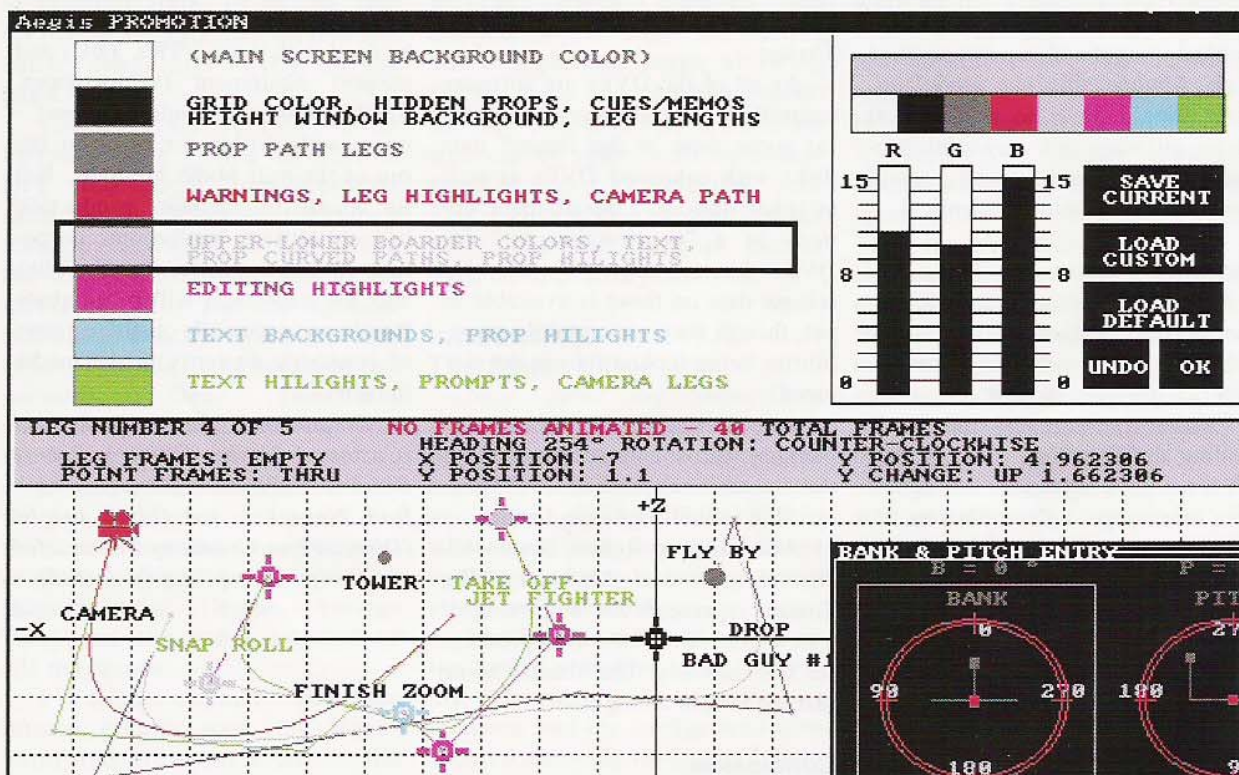
If VideoScape 2.0 is giving you the text-editor run around when it comes to motion paths and camera movement, here's the intuitive interface you've been waiting for. Dennis Nicholson is sold on Promotion - here's why.

► Just when I had given up my interest with *VideoScape 3D* because of its very unfriendly motion file creation system, along comes a new software package to rekindle the flame. As the *Promotion* manual states... "New power for *VideoScape 3D*...using *VideoScape 3D* is faster and easier than ever before", and how right it is!

No longer do you have to get out the graph paper and pencil to compute motion and object paths, it's all done with *Promotion* using a friendly screen graphic interface. The package looks harmless enough

when purchased, just a 120+ page softcover book and a single disk, but looks can be deceiving! (The manual's 'Quick Tour' of the program lasts 17 pages, and it's all in small print!)

Be warned, *Promotion* is so large, just under 681k in size, that it will not even load on the original 512k Amiga 1000 computers. (This software package is currently the largest that is available for the Amiga, and the memory requirements BEGIN at 1.5meg, with a recommended size of 2.5meg preferred!)



Overview

Simple commands are used to define motion paths for up to 25 objects, plus the camera. On-screen representations of animation match the final output - making Promotion one of the first WYSIWYG animation systems - a far cry from text files with X,Y and Z co-ordinates.

You can assign Gravity to one, or many, objects. Add a little wind velocity and you can happily simulate real-life wind conditions. Magnetism lets you assign magnetic properties to any object. Up to four light sources can be graphically positioned and the intensity for each set. Adjust camera focal length precisely.

Generating the paths of objects and camera is made simple thanks to the AutoCurving function. Dynamic Heading Control means you only need to point to the direction the object should go.

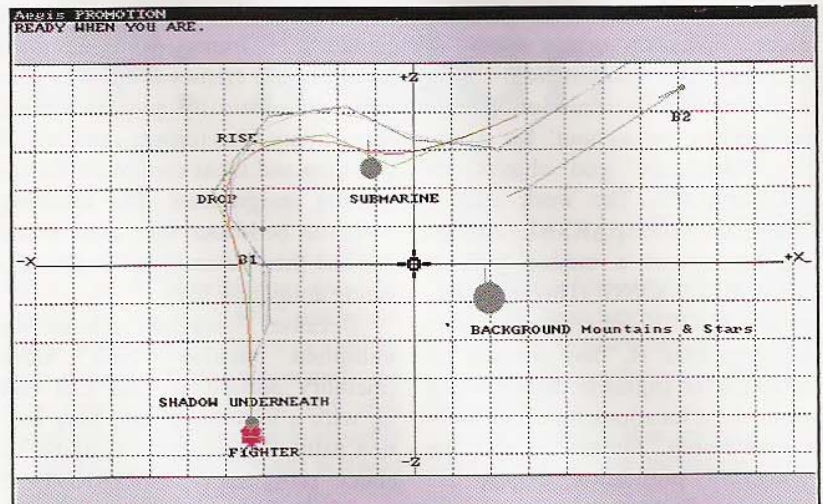
You can assign the number of frames for each animated leg along the entire path with just one click of the mouse button. Bank and Pitch settings are also adjusted graphically. Full Undo and Redo editing is provided. Large changes in motion files can be made with single commands.

Real Time Morphing handles object size changes on any or all X, Y, Z axis. Promotion works in your preferred resolution. Individual XYZ axis scales can be set for overscan.

The program intelligently and automatically adjusts path lengths if you alter the animation length. There are many Rehearsal settings and any aspect of planned motions can be previewed before recording. Overall, *Promotion* is a feature packed program.

Starting Up

Promotion opens to a High-Res 8-colour screen interface. Thankfully a complete sample motion file



(Jet Fighter) has been included on the master disk, and its creation is described stage by stage in the manual. I say thankfully, because without it, even the manual is difficult to follow the first time around. This is not due to bad writing, but simply because trying to understand the *Promotion* work screen is not easy unless the sample visuals are in front of you.

There are so many powerful options within *Promotion* it is very tempting to rush right in and produce a 1000 frame animation containing a variety of .geo objects ala' *Top Gun* or *Star War* style. All this is quite possible of course, that's if you have 9megs in your machine! But it's best to start at the bottom and work up to your first Academy Award ... slowly!

A great amount of thought (and time) has gone into *Promotion* to make it (here's that phrase again!) 'user-friendly', but it's true! To begin creation of a motion file you first LOAD a .geo (*VideoScape*) object and decide on its location within the work screen. Next place the CAMERA at a desired point, draw a PATH for the camera and/or the object to follow, select the number of frames for the animation and click on ACTION. The camera will move along your designated path to its

finish point (this is known as a REHEARSAL), you can then SAVE the MOTION FILE, or alter it as you wish. Instant *VideoScape-3D* animation! Sure saves endless time and graph paper!

One absolutely brilliant feature of *Promotion* (all software developers take note!) is what are called Phoenix-Files. These are special data-recovery files that the program creates for saving all data in case of a program crash. It will 'catch' self-induced program errors. When *Promotion* realises a program crash is about to occur, it will initiate the 'Crash-Net', a series of special pre-crash commands that save the current settings BEFORE letting the main *Promotion* program crash. When a Crash-Net is invoked, *Promotion* informs you that such a condition has occurred.

It then analyzes each motion file in use, renames it to a Phoenix-File structure, then generates a special settings file with a unique Phoenix-File structure, it will attempt to save these files, then continue with its crash. When the computer is rebooted *Promotion* will read the files and return to the exact data configuration that existed BEFORE the program crashed. It is even possible to FORCE a Phoenix save 'crash condition' just in case things lock up on

you. This advanced error checking feature takes *Promotion* closer to Academy Award nomination!

Promotion uses motion picture terminology throughout, for example, *VideoScape* .geo objects are called PROPS. The work area is called the REHEARSAL AREA, and laying out a motion path is called BLOCKING (Directors etc, usually BLOCK out a scene prior to shooting, that is, they discuss all camera/actor angles to decide which are the best locations for all elements concerned). Further to this the *Promotion* pull-down menus are called DIRECTOR, FOLLOW FOCUS, PROPS DEPT and PRE-PRODUCTION.

Motion paths are not limited to ground level - by using a HEIGHT window the altitude of props (and the camera) can be adjusted. This can be done visually, via the window to position markers at specific points, or it can be typed in numerically for exact locations. The BANK (left/right roll) and PITCH (up/down) options allow for angling of both props and camera within the path at any degree of angle, and the angles are variable throughout a motion path. Great for creating barrel rolls!

Long Animations

VideoScape 3D (version 2.00) is limited to a total of 99 frames of animation. If an animation is longer it will get terribly confused and refuse to operate correctly. *Promotion* is well aware of this limitation and it has an answer. If you create a motion path greater than 99 frames, let's say your masterpiece has to be 250 frames in length, then *Promotion* will go into a special 99+ mode advising you that multiple REELS of animation are about to be generated.

Each reel will contain, at most, 99 frames of motion. So your 250 frame scene would be split into

three reels. The first and second would be 99 frames, while the third would be 52 frames long. The program automatically generates three sets of data files (props, camera and settings) and takes care of all the re-naming assignments. The resulting reels can be loaded into *VideoScape 3D* and then be recorded as the 250 frame animation file.

Because *Promotion* allows for unlimited motion path sizes (memory dependent) you can end up with a very large, and long motion path(s). One option available to check progress is SNAPSHOT. If you wish to view several key frames prior to saving all the settings you simply press a key on the keyboard as the ACTION rehearsal progresses. Then, put *Promotion* to 'SLEEP' and open *VideoScape 3D* to render the snapshots. This allows you to check various prop placement at any point you like. (To operate both *Promotion* and *VideoScape* together requires at LEAST 2.5megs of memory).

VideoScape 3D uses several types of files to complete an animation rendering. Such things as motion (MOT), Camera (CAM) and Settings (SET) files are needed. *Promotion* does not require the user to add any such extensions to its files as this is done for you. If you save a specific Setting file as 'Jet', it will automatically be re-named 'Jet.SET', and so on, depending upon the type of file the program is working with.

The majority of options available within *Promotion* have keyboard equivalents. Instead of pulling the Director's menu down and selecting the ACTION option for example, you can hold down the SHIFT key and press 'A'. What is different about the keyboard equivalents within *Promotion* is that you don't have to press SHIFT-A, you can press just 'A', LEFT or RIGHT AMIGA-A, or a combination of all

of the above and still be presented with the ACTION option, whatever you are most comfortable with.

The only (minor) complaint I have about the program is that the LOAD/SAVE requestors will not accept input longer than 32 characters. So, if you are like me and have your programs on a hard drive set in different directories, e.g; Paint programs in one draw, and animation programs in another, then you may have problems trying to get to a file if it is buried within several drawers, such as...

LOAD- - - DH1:Animation/VideoScape-3D/Geo/SandCastle.geo

The LOAD requestor will only accept input up to the 'slash' after Geo. Still, it has taught me to keep my drawer names shorter. *VideoScape-3D* is now VS3D.

Another (minor, minor) bug, if you can call it that, is that a word in one of *Promotion*'s MANY MANY help/info screens was mis-spelled, FRAMES became FRAEMS. But after putting together such a splendid software effort I can't blame David Durham (Developer) too much, in fact, I would like to pass a MOTION that he deserves a PROMOTION!

NB: *Promotion* requires: 1.5Megs - 2.5megs or more if you are serious about it! Two disk drives - but a hard drive is more realistic. Workbench 1.3 or later. The package is available separately, or bundled with the latest version of *VideoScape 3D* version 2.0 or greater)

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□

Reader Feedback

CONGRATULATIONS

➤ "I am writing to congratulate you on your magazine. Two weeks ago I bought an Amiga 500 with hard disk and was given a copy of your magazine by my wife. I was very surprised at how good it was. For many years I had a Commodore C64 and gave up buying magazines because they were so rubbishy (also most were published overseas). Your article covering the installation of a hard drive was excellent. It was a shame I had spent several frustrating hours setting mine up, before realising the article was there."

Now that we have a decent publication can we please push Commodore Amiga to get their manuals up to scratch. At work I install Mac's and NEC PC's and never had the trouble I did setting up my printer and hard disk.

Anyway, I hope that your following magazines are up to the same standard. If they are you have a fan and reader for life."

*D. Randall,
Newport, NSW.*

➤ "I take this opportunity of congratulating you on the production of the 'Professional Amiga User' magazine which promises to fulfil the requirements of a good many Amiga users without being cluttered up with information which is irrelevant to dedicated users of the Commodore Amiga Computer."

*Leslie W. Wood
Echunga, SA.*

➤ "After having read Kay Stammers User Profile Article, I was indeed surprised with problems she had with Excellence! I have been a proud owner of Excellence! for 6 months now and have had no trouble with it."

*Robert Palmer,
Mill Park, VIC*

➤ "Kay Stammers sure did it the hard way. Her persistence in and financial commitment to seeking out the best word processor was heroic. However, the best WP is not to be found on an Amiga - yet! Rumor has it that in 1991 Word Perfect will be producing Word Perfect V5.0."

Congratulations on your team's first publication! A job well done. Your magazine will meet a need that is growing within the computing world, and I wish you well in your exciting, albeit nerve-racking, challenge. My subscription is enclosed."

*Philip Frahm,
President, Bridge Amiga Users Group,
Murray Bridge, SA.*

➤ "After buying your magazine on the off chance that it was the first Australian produced mag that would have something useful for Amiga Users, I am happy to say I appreciate your efforts and you have the makings of a

great magazine. You probably know it's a tough market - I hope you can survive because Australia needs you (Australia's Amiga owners at least)."

*Braydan Wilson,
Beenleigh QLD.*

➤ "Congratulations on your new magazine! I found it both informative and entertaining. The layout was extremely impressive, all the more so because I could show it to my IBM-clone companion as an example of Amiga output. Apart from some minor typos (especially in An Introduction to Telecomputing), it was very well put together, and I hope to see many more issues."

It was also a pleasure to be able to read an Amiga specific magazine written in Australia. A welcome change to drooling over American publications which describe various products not available here. I look forward to reviews of hardware and software which I can actually buy."

*Mr. Skevos Mavros,
Aranda, ACT.*

➤ "First, of all, I wish to congratulate you on your marvellous idea to publish a serious Amiga magazine. Since Wanneroo Business Computers specialise in Amiga business applications, it is only natural that we will recommend your magazine to our clients first and foremost - despite the fact that your first issue was quite a mixed bag."

*R. H. Liffers,
Managing Director,
Wanneroo Business Computers,
Wangara, WA.*

➤ "Many congratulations on the launch of your new magazine. It is serious and most useful."

*Professor Michael Greenhalgh,
The Australian National University,
Canberra, ACT.*

➤ "I picked up a copy of Professional Amiga User yesterday and was very pleased with the type and quality of the content. I spend, on average, 6-8 hours a day working with various Amiga word processors, and there isn't a day that goes by without me wondering why there isn't a really top quality program available for serious use."

*Clare Molony,
Exeter, NSW.*

➤ "I would like to congratulate you for producing an excellent premiere issue of Professional Amiga User. It is good to see a magazine for serious users."

*A. Wong,
Epping, NSW.*

➤ "I think your magazine is a great idea, and I'm sure with time you'll manage to sort out the 'bugs'. I guess numerous people have already pointed them out to you, so I won't go any further."

*J. Cohen,
Potts Point, NSW.*

AMIGA NEEDS NEW IMAGE

➤ "Congratulations on the publication. It is excellent to see a magazine targeted towards people that try and use the Amiga in the workplace. Unfortunately we are very much in the minority."

When business associates ask me what system I use in the Agency, I feel almost embarrassed telling them.

Why is this? I should be proud of the product. I know what it can do. I should talk with glee about the incredible flexibility, the low cost relevant to its power. The low cost of software.

Somehow they don't want to hear about this. Their perception of the Amiga is that it's a toy. Most of them are not computer literate or interested. They have been sold MS DOS machines because they were told it's the industry standard. The saying "No one ever got fired for buying IBM" is so true.

Likewise the people in the advertising, design, desktop publishing areas buy Mac's, because that's what you buy for those end uses. I know that I can get the same performance for around \$6000-\$7000 from an Amiga compared to a Mac which will cost \$15,000.

I still believe that the Amiga does suffer from a lack of specialised business software. For example there is a program for the Mac called Job Bag. This is a specific Advertising Agency package. It would be wonderful if the manufacturers of the product to consider adapting it for the Amiga, but I cannot see that happening. Our installed base around the world is too small. In fact it is America that lets us all down. I am told that Australia and Europe are much better markets for Commodore.

Only time will tell whether the 3000 can change business people's attitude to Commodore and the Amiga.

It is enlightening to see that Commodore in the USA and Australia is taking a more positive attitude to its customer base and using the media to promote its products.

Personally I am happy to support the product. We have 2000 plus two 500's. I can't wait for networking and all the other goodies that Commodore are talking about releasing.

Once again congratulations, and keep up the good work."

*John Varcoe,
Partner,
Ryan Varcoe Advertising,
Leederville, WA.*

Pactronics are pleased to announce the release in Australia of the Cameron range of hand held scanners for the Amiga. The TYPE 10 is a 105mm wide black and white scanner, with 100-400 Dots Per Inch variable resolution. It is ideal for grabbing graphics for use in either word processing or DeskTop Publishing. It is supplied complete with a comprehensive manual, HANDY PAINTER graphics package and HANDY READER Optical Character Recognition software. This last package can convert a scanned text image into an ASCII file suitable for D.T.P. or word processors. It comes pre-trained for most common fonts, and can even be trained to recognise Amiga graphic fonts printed onto a dot matrix printer!

Now you can really let your imagination run wild! There is simply no faster or easier way to get vivid, full colour images in to your Amiga. The TYPE 6 hand scanner operates in all Amiga graphic modes, even EXTRA HALF BRIGHT and HOLD AND MODIFY (4,096 colours) modes. Scanned images are saved in standard IFF format, ready for use in your applications. Now, your imagination is your only limit!

If you're operating your Amiga on a lower budget, there's still a scanner for you. The IMG SCAN actually uses your existing printers mechanism as its means of scanning a page. The device consists of fibre optic cables that attach to the printer head. The accompanying software "drives" the printer head to and fro, whilst the optic cable "read" the image as it passes under it. It's simple, efficient and economical.

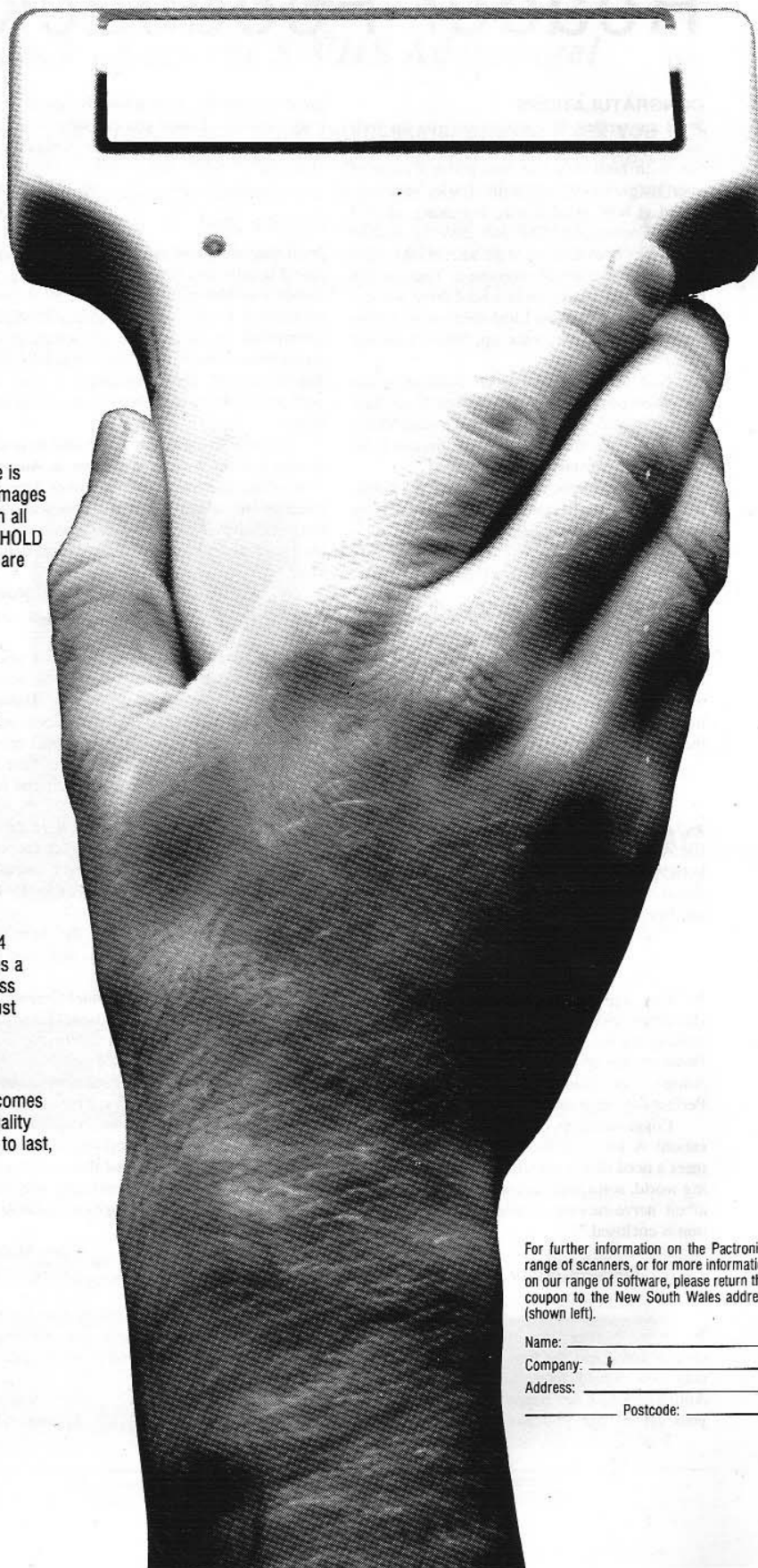
Your search for a better Amiga mouse is over! The M-4 mouse is the best quality mouse you can get. It features a more ergonomic design, proper microswitches and brass rollers. No more dead buttons, no more rusty rollers; just smooth, precise control.

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Let's go into a Desktop Video Business

There's more to setting up your own Desktop Video Bureau than simply buying a good Genlock and a copy of Professional TV Text! - Nathan Cochrane passes on his first hand experience from the business end.

➤ So you have finally done it! Inspired by all this talk of 'Multi-Media', 'DeskTop Video', 'Computer Generated Imagery' and other such throw away buzz words that are running the traps at the moment you decided to go out and get yourself an Amiga. Well done, it is a good start, and I emphasise that is all it is - a start.

Hopefully when you bought your Amiga, probably a vanilla B2000 or A500 (possibly second hand) you also purchased along with it a monitor, modulator (or genlock), second drive and the one meg memory upgrade (A500) as well as some piece of software (*DPaint III, Silver, VS3D* etc).

If you haven't, then put down this magazine and go out and purchase them pronto, because without them you won't be able to do diddly.

OK, now that we are at minimum requirement (I am assuming you already have a domestic VTR

lying around somewhere), we can start thinking about where we are going to go with all this new equipment. By this stage, after having bought all the equipment you should have a fair idea of what you hope to achieve, but a word as to possibilities never goes astray.

Probably if you are like I was, all you want to do is simple titles for home movies or MVs (music videos), and maybe try your hand at some of those trendy 3D graphics that you have seen about the place. This is a good start, and for the average person all they will ever do, but if you want more, and maybe a chance to make some money, then read on.

The Demo Reel

Most of you by now would have seen the Newtek Demo Reels. Did they make you want to run out and buy a *DigiView*, or at least inquire as to what *Digi/FX* was? If they did, then good, that is what they were meant to do.

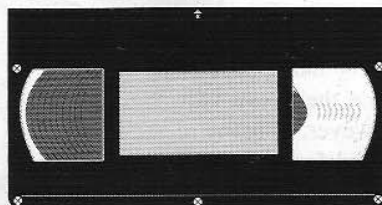
The demo reel will become the cornerstone of your business. A demo reel in the true sense is a video (or film) with carefully edited segments of your previous work that detail in a visual medium your capabilities. The reel can be combined with a written submission for clari-

fication, however it is the visual medium that will get the most attention. As you are in the business of selling other people, it is especially important that you be able to sell yourself via this demo. Failure to do so could be the death knell of your budding little enterprise. It is also a good indication of whether you are ready to go into business or not.

Demo reels can be used for showing clients your capabilities, getting bank finance, arranging Government Grants and more. Nothing to you is potentially so valuable as a demo reel, so take great care with its formation and set it to some suitably snappy music, not too trendy as this tends to go out of fashion quickly so stay clear of house, rap, vogue etc unless it fits well.

"New Order" style music is good for this, though you will probably want to hire the services of a professional muso for something original. Arrange a contra deal - he prepares an arrangement for you and you do his video for him.

It may be a good idea, depending on the markets you hope to finally attract, to prepare a number of reels, to show in greater depth the extent of your commitment to a particular client's needs. Spinning psychedelic spaceships are good if you want to impress a nightclub owner, but not terribly useful for convincing an insurance company of your ability and credibility. Alternatively you could have the various aspects within the same reel, however, this can also be discourag-



ing to a potential client as it seems that you won't be concentrating on their particular industry's needs.

Demo reels should be updated at least annually to keep up with current events and changes in the techniques and software you use. They are also an interesting time capsule piece and useful for historical interest as well.

Prepare the master demo reel on the best quality equipment you can lay your hands on, even if that means having to hire a professional 1" video suite for a day and a single frame recording device for bits to lay it all down. This will become your master and ensure that the quality for distribution is always the best possible.



Markets

It doesn't hurt to have an idea about what you might expand your operation into if you find you have a flair for animation and DTV in general. Many of the graphics you will see on TV and in videos (esp. MVs) have been done with Amigas or with techniques readily available on the Amiga. As you will discover later on in the series, the Amiga can fool all but the most astute watcher into believing that effects were generated on \$50,000 DVE equipment!

It would seem natural then to consider some form of post-production service. For those unfamiliar or hazy on the term, post production is simply the time after principal shooting and editing has taken place. It is in this period that things such as titles are laid down, credits rolled and the mandatory genlocked computer swatches of pattern and colour are flashed over

the main edited portions.

Marriage videos are becoming big business (if you don't believe me, look in the classifieds of your local paper or in the Yellow Pages). Often these small production companies have their own equipment for titling, but may appreciate someone to do some contract work for them, or someone who can lay down more than a boring old *Pro Video* page now and again.

Know anyone in a rock band? This could be a source of exposure, if not instant wealth. Find an up and coming rock band and offer to do their videos for them for free or a nominal charge. If the band is any good, your creation could wind up on MTV!

Do you have a local film institute or do you know any film makers? Often film makers work to very tight budgets and very long hours, they appreciate someone who can do the 'computer stuff' as it frees them to worry about arranging finance, seeing bankers, organising equipment, casting talent and the myriad of other things they have to do that comes under the guise of 'art' and creativity.

Remember, many are graduates from the old days of film, and even though they may be shooting on video now, many are still not terribly confident with the medium, and very suspicious of computers in general. If you get as far as going commercial, then you will understand the reasons for this well as you in turn struggle with their world.

Nightclubs, like rock bands, are also a good form of exposure. However, as many nightclubs are owned by large scale enterprises such as Showbusiness Australia, you may find breaking into this arena particularly hard. Especially if they produce their own videos. Take heart, however, as many of the videos produced for nightclubs at the moment are of a particularly poor quality,

and an inspired demo reel from you could well do the trick.

However, don't expect to become a multi millionaire overnight. Nightclub videos pay reasonably well, but not great considering the number of hours that goes into them (anywhere between 2-10 hours per produced minute) and you will have to produce videos of at least 30 minutes in length. If you undercharge, you may as well be paying them to do the work as it will be no more than a drain on your resources. Overcharge and they may take the first one, but won't come back again.

People at a nightclub aren't as interested in your creative little masterpiece as they are in engaging the opposite sex, getting drunk and performing gymnastics on the dance floor. So if the management plays your video constantly for months without a change, no one is likely to notice, let alone care.

I say this from experience with some tightfisted nightclubs who I have seen play the same video week after week for years! So set a time period into the licence and always, always retain copyright of the material. Failure to do so will mean that you - the creator - will not be able to use any of the footage ever even in future productions to the same people. So if a nightclub (or anyone for that matter) wants sole ownership, either say no or bump up the price a few thousand percent to cover your future opportunity costs.

Going 'Broadcast'

A lucrative and much sought after market is the broadcast band. The big TV stations who spend absolutely squillions on commercial junk from the US. Your chances of getting in here are next to nil. Even the ABC, the bastion of 'culture' for so long in Australia is almost completely out of reach for all but the best and most expensive produc-

tions.

For all intents and purposes the cosmopolitan channel, SBS, is your best bet. 'Eat Carpet' is a show that screens Fridays and features works from people such as yourselves. The SBS cannot afford to pay much (around \$68 per screened minute, however this is likely to rise a little in the near future), but at least it gives you a chance to display your wares.

Television stations prefer series rather than one-offs, so if you are going to do something, do at least two or three of them. Also the television stations prefer to have some input, and surprisingly, productions that aren't further than the scripting and planning stages are more likely to receive interest than finished productions.

In the U.S., local cable TV and public broadcasting (like SBS) companies have often been happy to accept untried projects such as many of the ones small production houses turn out. MTV has been especially helpful in this area with the Amiga. One can only hope that with the advent of cable in Australia, the same will happen here, as our Network Broadcasters who have Australia's odd brand of MTV have been less than helpful in fostering local talent - music or video.

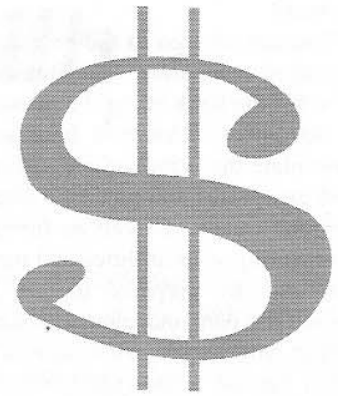
Where to get Money

As you purchase all of this equipment, you will realise that it is an incredibly expensive 'hobby', so you may be tempted to resort to such drastic measures as bank robbery to get your next fix of equipment. I would suggest something that is akin to this, but a whole lot more legal - Government Grants.

It is surprising what untried, hopelessly unsuccessful schemes the State and Federal Governments will throw perfectly good money away on in the names of 'Art' or 'Social Responsibility'. There are people walking around today with hundreds of thousands of dollars of equipment in their arty studios who have one tenth of the art ability you have, and less than a micron of the computing ability.

However, they knew where the easy money was and they went for it. Of course a Grant like this all but rules you out of doing anything commercially for a while, but it will get you experience and equipment you could quite possibly never have gotten otherwise. Check with your local art council or film or tertiary institution for more details on Grants available in your state.

Banks are a natural form of money for any business, however getting loans, and good priced loans, are harder and harder to come



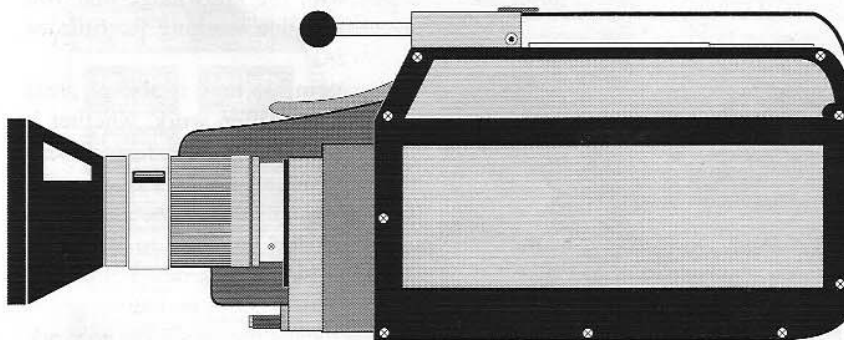
by. If you are just starting out, without much of a credit or business history this task is nigh on impossible.

Bank managers are essentially schizophrenics; they must loan out money in order to make money, however whenever they approve loans they also run the risk of having the debtor renege on them. It is a strange world.

The first thing to do is to put the bank manager completely at ease with your proposal. Your business he will naturally equate with the high risk world of film, so show him a hard headed, aggressively business-like and professional approach. bank managers like this.

In order to do this you might like to show them your demo reel, this will impress. Then present a written (preferably lasered), well bound and comprehensively weighty document called a business plan that will show how you are going to take on Industrial Light & Magic at their own game and win. Bankers like big impressive things (why do you think all the banks use IBMs?), but don't dribble - keep it to the point.

In W.A., the Small Business Advisory Council is an excellent source of information on things like business plans, so go there for more info. (In other states check with your local employer body or Corporate Affairs or your local Member of Parliament for more info on similar



services.)

You can also go to the extent of presenting a separate video presentation for the bank along the lines of the document. This will help you consolidate the information, and edit out any gaffes and present a clean corporate image, as well as further documenting your abilities and marketability. Be prepared to talk in person. The bank manager will want to meet you to see what sort of a person you are. Just repeat what is in the document and you shouldn't have any problems. Oh, and by the way, if you are like me and itch at the mere sight of a suit, hold back your repugnance and don one, both for the video presentation (if you decide to produce one) and for the business meeting. Show the bank that you are every bit as conservative and stuffy as they are (even if you are the flighty arty type!)

Another alternative is getting funding from private investors. This offers substantial tax advantages for them, as well as the prestige of being attached to a production company. Again, the demo reel is crucial for attaining finance.

Finally, you can finance the entire project yourself. This has the advantages of allowing you complete control of the enterprise and the decisions involved as to its direction. It is potentially far more costly, but also far more rewarding.

Your Role as a Consultant

'Consultant' is a term that has such a nice ring to it that a lot of people go into consultancy firms and spend big bucks without knowing exactly why it is people go to them. Even worse are those who are consultants, and don't realise that they are!

Take it from me, if you are asked at any stage to do computer graphics for someone, then you are a consultant. If someone asks you to set up a system or advise them on a

production facility, then you are a consultant. Chances are in this field any work that you do will involve some aspects of consultancy. So, what is a consultant?

A consultant is someone who gives expert advice or information. Often the task of consulting requires stepwise, logical refinement of a client's problem/requirements. The client will be spending a great deal of money with you, so anything you can do to put him at ease and convince him that he has made the right choice in hiring you cannot go astray.

Be professional! This point cannot be over emphasised. Too many people go into this business thinking that by virtue of their skill alone that they will succeed and that the world owes them a living - it doesn't. They are cowboys who cannot produce on time, to a budget within the required specifications.

People like this give the entire industry a bad name. Being 'professional' does not mean you have to wear a suit (though with some clients this is a necessity, and with most, at the least, highly advisable), but it does mean you should listen carefully to what the client has to say, and give him what he wants when you say he will get it.

If something he asks for is impossible with your equipment, or with any equipment, let him know. If he specifies a price limit, and

what he wants is possible but not at that price also let him know - he may be willing to spend the extra to get what he wants. On the other hand, if you cannot do what he asks, let him know this from the outset, he will respect you for your honesty and most likely will come back.

Another aspect of professionalism that eludes many first time consultants is the need to deliver what you said you would deliver on time and to budget.

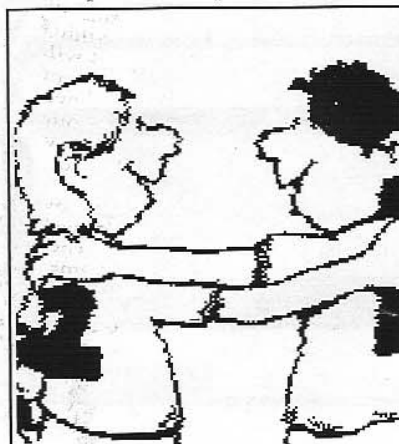
Many underestimate their fee at the outset in order to get the job, and as such have to raise the quoted price half way through. This is an evil practice to fall into, because it is almost certain that some of the project has been skimmed over at the beginning to fit the scheduled fee and as such won't be up to scratch. It is almost as certain that the client won't come back.

Almost as bad as undercharging is overcharging. This can quite often lose you the job at the outset, and you could get a reputation for being a rip-off merchant.

To alleviate all of this, be fair and accurate in your charging, carefully adding up all the little things as well as the big. When you have done this, add a contingency fee of 10% onto the total, or 15% if it is particularly risky. If you have been fair in your quote, and the client goes for a cheaper submission, be happy with the knowledge that you are not the one working for little or no reward.

Preparing to time is also of great importance. Often work, whether it needs to be done for a film maker, or a TV advertisement, or a rock-band or whatever, will need to have a time period attached to it, at the end of which the product must be forthcoming. Don't be late!

If it means that you have to work late hours or show up to a meeting with the client when you are tired, then that is what you must do. The



client is depending on you, and you are duty bound to deliver within the time period you said you would. If the client wants something 'yesterday' (and they almost always will) then you must inform them, gently but firmly, that that is not possible and that it will take 'x' number of weeks from the day of commencement for an interim production to be finished and then so many weeks more for the final product. The client will respect you for your professionalism, and will 99 times out of a 100 take your advice - that is what he is there for.

As with undercharging and overcharging, don't overestimate your time either. A video that should have taken two weeks should not be delivered in one. Clients are funny beasts, they will view this not as advantageous but as you skimping on their work - even if it is exactly what they wanted! Accurately estimate the time involved and stick to it.

It is a good practice to fall into to provide a client with an interim production so he can suggest changes to the original idea or set you straight if for some reason you haven't delivered what he expected.

Always be scrupulous in your conduct and professional in every manner. In the final analysis, someone with less technical skill and more interpersonal skills with a higher degree of professionalism will win out every time over the talented cowboy. In the long run this advice will serve you well, as clients return over and over again for years to come.

More on Business - Planning

In my capacity as a consultant it is surprising how often people come to me to find out ways of putting their equipment to better (and profitable) use. Invariably I tell them a few very simple things that seem like common sense, yet it is surprising how many people don't consider the obvious fully.

Firstly, to look for needs and find ways of satisfying them. Secondly, understand your own personal strengths and weaknesses and the ability of your equipment. Thirdly, look at what other successful people in that field are doing, find what works and imitate it, what doesn't work or could be done better, do better.

Get all the advice you can, from

journals, experts, friends, sales people - be informed, don't take my word for gospel, ask around till you have arrived at a decision that you are 110% comfortable with. If this is going to be more than just a hobby, be very, very certain that what you are doing will make money, otherwise do something else.

Finally, this is a relatively new field and hence there is room for newcomers with gumption, but be very sure you can deliver and work within a budget. The current economic climate is not one which is particularly conducive to new, high risk ventures starting up, so be absolutely certain you can deliver before you make another step if this is going to be more than just a hobby to you.

Rather obvious advice, yet it is surprising how many people don't consider it before large and costly mistakes are made.

Hopefully this advice has been of some help to you, either in illuminating you or in consolidating what you already know. If anyone has any queries or suggestions, then please drop me a line care of 'Professional Amiga User', P.O. Box 288, Gladesville, NSW 2111. □

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The CO-Midi Interface PocketAMI

by Phil Rigger

Up until now, the search for a good Midi interface to use on your Amiga has been a somewhat difficult one. There have been various devices available through Amiga retail outlets, but general supply and information has been scant.

► By comparison, interfaces for other computers like the Mac have become freely available through both their normal computer retail outlets as well as professional music stores, and are of a quality that professional musicians have come to expect.

Well fret no further. Alarm Communications from St.Kilda in Victoria have released several models for the Amiga that cover both the needs of the semi-pro and pro Amiga user.

The first unit under the microscope is the Pocket AMI. It consists of a clearly marked compact plastic case equipped with 1 x In, 1 x Thru and 2 Outs.

Many of the more basic units have only In and Out, or In, Out and Thru, so for a unit of this price the fact they have included an extra output is a definite advantage. This of course allows you to connect two keyboards or modules directly out of your computer, which lessens the chance of Midi delay.

For those of you who may be unaware of the significance of this fact, an explanation is in order. Midi delay occurs when you plug a second keyboard into the Thru of your first keyboard, which in turn is connected to the Midi

Out of your computer. Because the first keyboard is receiving all 16 channels of Midi, time is taken to process the information before sending it out of the Thru to the second keyboard. The second keyboard then has to process it.

The time frame I am talking about here is only in the order of milliseconds, but when you are using more than two keyboards, the delays become more and more noticeable. (Ever notice that the drum track is somewhat late, or that the bass line is dragging a little?) So as a general rule, the more outputs on the Midi interface, the less likely it is to become redundant as your Midi system grows.

The Pocket AMI fills this requirement nicely. It also has a 1 metre connecting cable, which allows easy access when connecting and disconnecting your keyboards.

The second unit is the Comidi 'Mini'. Why it is referred to as the 'Mini' is somewhat unclear as it is the larger of the two units under review. It is more expensive than the Pocket AMI, but can be considered a truly professional Midi interface.

Its casing is sturdy metal with a finish similar to that of the Amiga, and it can be ordered with one of two cables - male to male for A1000's and male to female for A500's and A2000's. It comes equipped with two Midi Ins and four Midi Outs, a Computer/Thru switch and a two) metre cable.

Alarm Communications have done their homework here. For a start, the securing screws on each end of the cable are of the 'finger tight' variety. No more crawling around the back of your Amiga with a screw driver and torch.

Secondly they provide you with a very comprehensive manual. This is worth mentioning because manuals, as a rule are rare for Midi interfaces let alone one as comprehensive as this. Ex-

planations are given for just about every use and configuration as well as diagrams and troubleshooting tips.. Alarm also provide you with a number for their bulletin board for future product information, operational tips etc.

A nice touch is that all of the Midi plugs are on the top of the unit, allowing you to easily see what has been plugged into which input/output. As well, the two metre cable allows you to position it nearer to your keyboards instead of having to grope around behind the Amiga when plugging or unplugging Midi cables.

To top it off the unit comes with a twelve month warranty. If there was one wish, it would be that a 'Thru/Serial' capability was added to the Comidi 'Mini'. Such a facility would allow you to keep your modem plugged into a second serial port on the interface.

Switching it over would disable Midi and allow you to use your modem or any other serial peripheral device. This might smack of overkill, but when you consider the multi-tasking capabilities of the Amiga, this is not such wishful thought.

Alarm Communications have not only come up with two excellent products, but have them keenly priced. They are presently available at a number of music stores, or from Fineline music on (02) 387-1240 (for New South Wales and Queensland) or from Alarm Communications.

I have used both interfaces in a very busy professional environment for quite a while, and have experienced no problems at all with either unit. They are definitely among the best Midi interfaces available for the Amiga, and come highly recommended by a number of professional Amiga music users including myself.

The new flagship

An in-depth review

Amiga 3000

Tim Strachan, editor and publisher of Megadisc and one of the first Amiga 3000 owners in Australia, joined forces with Chris Ralph and Tony Day to compile this in-depth look at the new Amiga 3000.

Sources of information include the Amiga 3000 manuals, downloads from overseas bulletin boards, Commodore technical support at Westchester and help from local Commodore staff - not to mention a good deal of hands on testing and evaluation.

➤ Avoiding the techno-speak for the moment, in essence, the A3000 is terrific! It looks and acts like a well-designed, advanced, 90's piece of hardware.

A lot of care has gone into the look and feel of both the machine and software - and that care is going to pay off in the end. It is fast, has a small footprint and loves any addition of peripherals.

The A3000 is the first major leap in Amiga technology since the introduction of the A1000, and it will take a fair bit of improving to bring other Amigas up to its speed.

There are a few points to be careful of, however, as detailed later. It is not yet what the Amiga could be. There will be some people who will want to soup up their cur-

rent machine or wait for the larger A3500, which we have good reason to believe is currently waiting in the wings.

Documentation

The manuals which come with the machine are professionally produced. Moving from smallest to largest, there is a *Quick Connect* double A-3 size fold-out, which covers all the basics of getting up and running, along with the necessary warnings, pictures, labelled diagrams and so on.

Introducing the Commodore Amiga 3000 is a soft-cover book, half of which is devoted to overview, features, getting started, and expanding.

There are many line drawings which make things pretty clear, and it moves from simple definitions up to the deeper technical subjects, especially in the second half of the book which is taken up with Appendices - specifications, plug pin assignments, the display enhancer, the keyboard and the A3000's schematics.

For the technically minded crystal-ball gazer, the schematics will reveal much of what is coming in the future.

Overall, a well written and designed manual.

Using the System Software - a big three-ring plastic-coated binder, complete with internal plastic pockets, place markers and system disk-holders. All the paper contents of this binder came shrink-wrapped as did the labelled cardboard section separators. The introduction goes through what you've got, how to ac-

SPECIFICATIONS

Microprocessor

Motorola 68030 16MHz with 68881 FPU or 25MHz with 68882 FPU

Enhanced Chip Set

Real Time Clock

32 bit Access to Fast ram

32 bit Access to Chip ram

Memory

32 bit Fast RAM support

- custom controller handles static column mode Drums and CPU burst access.

1 Megabyte CHIP RAM expandable to 2Mb on board

1 Megabyte FAST RAM expandable to 18Mb on board

Storage

32 bit DMA based on-board SCSI controller

40 Megabyte Quantum SCSI Hard Drive

Display

Built-In Display Enhancer

Cabinet

Low profile case supporting total of 3 internal 3.5 inch drives (two accessible externally)/small footprint.

Front mounted power switch

Model Numbers

Commodore Amiga 3000-16-40

(16MHz with 40Mb HD) \$na

Commodore Amiga 3000-25-40

(25MHz with 40Mb HD) \$6119

Commodore Amiga 3000-25-100

(25MHz with 100Mb HD) \$7199

Expansion

4 Zorro III expansion slots each downwardly compatible with Zorro-II cards

1 100pin only slot

2 100pin slots w AT style extensions

1 100 pin inline w

A2000 style video slot

1 CPU expansion connector "fast slot"

200 pins with processor takeover capability (68040 board)

External connectors

23 pin Amiga Video

15 pin VGA

External SCSI

External floppy, serial, parallel, audio, keyboard and joysticks.

cess it, and the like and the contents pages are exhaustive.

The four main divisions and their sub-divisions are: Workbench 2.0 - Tutorial, Basic Operations, Preferences, The Workbench Programs, The Extras Programs, Using a Hard Disk; AmigaDos - Using AmigaDos, AmigaDos Reference, Editors; ARexx: A full manual for ARexx - essentially the original ARexx manual Appendices, Trouble-Shooting, Printer Drivers, Backing up your Hard Disk with BRU.

There are many screen-shots throughout the explanatory parts (some of which will have to be updated, as they show previous Workbench versions), and the entire publication is generously laid out.

In short, a complete, well-organised document with plenty to read through.

Tony Day tells me that his A3000 came with a re-packaged A2000 Basic manual - about as useful as a dead dingo, especially considering at the moment Amiga Basic running on the A3000 falls over seriously on both 1.3 and 2.0.

Getting up and running

The machine I received was formatted, installed and ready to boot-up. It came with a 40-meg 3.5" Quantum hard disk, and one internal 3.5" floppy drive and the 2Mbytes of RAM mentioned above. I had got the 1950 monitor earlier and it hooked up with no problems.

Turning the machine on automatically takes you into Workbench 2.0 mode (Kickstart 2.0 is loaded from the hard disk).

If you hold down both mouse buttons immediately after a cold boot (from power-up), you are presented with a screen which gives you a choice of booting up using Kickstart 1.3 or 2.0.

Of course, once you're in a particular Kickstart/Workbench mode you can't get out of it without powering down and starting again.

Tony Day found another interesting screen - if you warm boot under Workbench 2.0, keeping both mouse buttons down, you'll be presented with a screen which allows you to shut down current storage devices and reboot from external devices, such as a 5.25" disk drive.

This will help with programs which have not followed Commodore's programming guidelines

The Custom Chips

BUSTER

(Expansion Bus Controller and Bus Arbiter)

It takes 68030 signals and converts them to Zorro II or Zorro III signals, as appropriate, for CPU access to expansion bus. Going the other way, it converts bus signals into 68030 signals during DMA. It's also responsible for bus arbitration of CPU slot, SCSI, Zorro II and Zorro III expansion slots.

GARY

Local bus controller.

RAMSEY

DRAM controller and SCSI address generator.

DMAC

SCSI DMA data path chip.

AMBER

Scan doubler/converter, similar to what flickerFixer does. except this version is compatible with genlocks, and does not suffer a reduced display area.

and do not function reliably under Workbench 2.0

No More Flicker

With a multisync monitor, such as the NEC or the 1950 (Commodore's own) you get a bunch of different video display modes, most of which are flicker-free at high resolutions. This is a deinterlacing/scan doubling capability, which takes interlaced high-resolution screens and outputs them without flicker to a 31.5-kHz VGA monitor.

It also eliminates the black scan lines between rows of pixels on both low and high resolution displays. This is effectively what Microway's FlickerFixer does, except that it's built into the hardware (thus freeing a slot) and doesn't have the drawback of reduced number of horizontal scans.

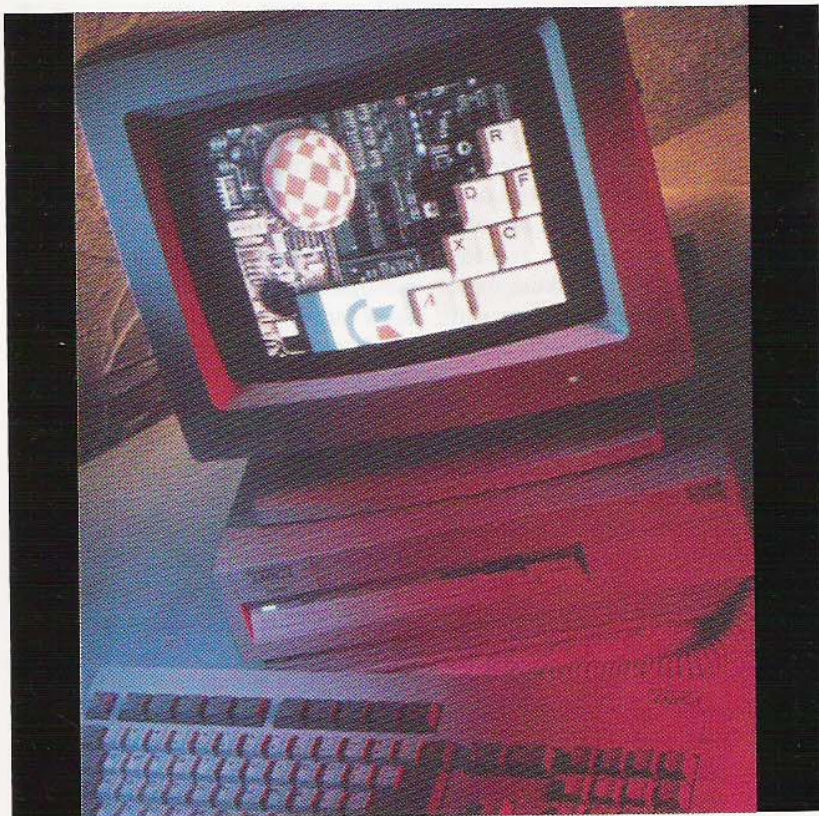
The VDE can be finely adjusted from the back with a small screwdriver, something I had to do when I first got the 1950 monitor, as there was some jitter and "shimmer" on the edges of screen objects.

There is a bypass switch on the back of the computer so you can disable it if you have a multiscan monitor.

A couple of the video display modes cannot be de-interlaced - to de-interlace the super-hires (1280) modes would require twice as much memory for the deinterlacer circuit as has been put on the motherboard. That would be expensive.

So the SuperHires Interlaced (NTSC/PAL) and the Productivity Interlaced modes can't be deinterlaced by the VDE. The VDE switches to bypass mode when it detects Productivity mode, and samples the superhires screen (alternate pixels will be missing).

It should be disabled (flip switch) when using superhires. All other PAL and NTSC modes are deinterlaced, regardless of depth or overscanning.



Full Screen Overscan

It took a bit of playing around with Preferences on both WB1.3 and WBtwo before I managed to get a full overscan (704 x 580 pixels) covering the entire screen of the 1950 monitor - I haven't heard of any other multiscan monitors being able to do this, so keep it in mind when you're thinking about monitors.

Nic Wilson, who apart from being a general Amiga wizard is a TV technician, seemed to think this was very unusual. The NEC 4D has a wide range of controls, and programmable slots so that you can remember a whole bunch of settings, and it may do the same, but it costs about \$2500.

Speaking of monitors - you can still use the RGB port to run a 1084-style monitor (at the same time as the multiscan if you like) and if you're really keen you can add on an A2024 monitor for that DTP and CAD work.

The Enhanced Chip Set

The enhanced Denise chip can output up to 1280 horizontal pixels in four colours, and it sports a new 640 x 480 pixel-resolution productivity mode.

Unlike other high-resolution modes on the Amiga, the productivity mode is not interlaced, and it is limited to four colors.

Being programmable, Denise lets you mix different horizontal and vertical resolutions and provides the overscanning necessary for video applications.

The new Agnus chip doubles the amount of accessible chip RAM to two megabytes. The only chip not upgraded is Paula, which provides the Amiga's four-voice sound.

The custom chips, the Agnus/Denise/Paula, are still clocked with one or both of the 7.16MHz clocks, as in an ECS 2000. The chip memory is 32 bit wide, but only the CPU can take advantage of that.

Looking at the Motherboard

The motherboard is compactly designed, which has its pros and cons - to have a look at the entire board requires removing the hard and floppy drives and upper plane and drive platform and this in turn requires some fiddling to remove the back plates.

As Chris pointed out, there were two kludges - a line has been soldered in from the maths chip to the buffer and a resistor has been slipped in as an after thought too..

According to the schematics, the A3000 was designed in West Chester, US, not Germany where I think the A2000 was designed. The Schematics also have references to the A3500, presumably a "tower" design with more slots and ports and other gizmos.

Expansion

Zorro III expansion slots are one of the major new features of the A3000. With the exception of the graphics system, which uses a 16-bit bus and an NTSC-compatible 7.14-MHz clock, all the internal

pathways in the Amiga 3000 are 32 bits wide and use the processor's clock.

The external I/O (Input/Output) bus is capable of 3two-bit transfers without losing compatibility with 16-bit peripheral cards, good news for current owners of such cards.

The I/O bus, called ZORRO III, multiplexes the address and data lines for I/O cards capable of 3two-bit transfers, while treating 16-bit Zorro two cards normally. There are four 100-pin expansion slots and all are Zorro III - two are bridge slots, and one is shared with the video slot. They are located on the daughterboard, which is perpendicular to the motherboard.

Two of the 100-pin slots also have PC/AT slots in line with them. The "form factor" of the slots (ie how big a card they can take) is the same as for the A2000, meaning that a PC/AT Bridgeboard can be fitted.

The video slot is the topmost slot and allows for cards that are a bit fatter than a Zorro card. However, any card that used all the space in the A2000, rather than the dimen-

sions specified, will not fit. The A3000 is a slimmer beast than the A2000.

There is also a 32-bit Fast slot on the motherboard for future expansion such as a 68040 microprocessor and other "high performance options". I added ASDG's Dual-Serial Board because I need to link the A3000 up to a modem and a Postscript printer, and I was playing around with Wayne Frew's version of DNet (for public domain networking). It slotted in perfectly in the lowest slot (the slots are horizontal on the A3000) and was up and running immediately.

I'm told that any expansion device that has been designed according to Commodore's specifications will work fine on the A3000.

However, there are a few peripherals, such as VIDI, which will not work with any kind of fast processor. Unlike other Commodore machines where the faster 680xx can be switched off, with the A3000 you're stuck with the 68030.

Adding RAM

The standard machine also comes with 1 Meg of Chip RAM and 1 meg of Fast Ram installed in the form of DIP (dual in-line) chips. To expand the system, (which I'd recommend you do immediately as the computer is memory-hungry especially in its current configuration requiring the loading of Kickstart into RAM), I suggest pulling out the fast RAM DIPs and slotting them into the available bank of chip RAM sockets.

Then go out and buy ZIPs of 100ns speed or better (which have been used because they take up less space, since they're slimmer and "angled") and whack them into fast RAM bank, one meg at a time. 32 in total will give you 4 meg of fast ram.

If you get static column memory (SCRAM) chips, you'll



go faster than with the more common page memory, because RAMSEY (see above) will detect its presence and enable "burst" mode on the 68030, thus greatly reducing the time needed to access Fast Ram. If you use SCRAM chips, they should be 80 ns type or faster.

NOTE - You could buy the new 1 megabit ZIP chips (two per 1 meg of Ram) and build up 16 meg of fast RAM on the motherboard.

When I enquired about this it seemed that the cost loading for getting 4 meg of these was about 40% on the cost of the lesser chips, and since I didn't need 16 meg (yet! - I'm sure the time will come sooner than I imagine), I went the cheaper route.

You can't mix and match these two kinds of chips, it's one or the other. The next release of the manual will have all this fully explained.

Adding a Hard Drive

The SCSI controller is on the motherboard and uses much of the same technology as the 2091. The driver is written for the A3000, and there may be some 32-bit enhancements. I added an 83-meg Seagate SCSI drive in the other 3.5" slot which could also take a second floppy, if required.

There were no hitches apart from the fact that I was missing the single-screw plate which is a good new design feature of the A3000.

A phone call to Commodore secured me one immediately, and I found that the holes in the plate to attach the drive were set up for floppy drives, and didn't quite coincide with the holes in the hard disk.

In the end, a drill was required - I've told Commodore about this and they say they'll fix the problem in future. The drive slotted in and fired up and it was straightforward to use the "HDToolBox" software supplied to prep, format and configure it.

The "Introducing the A3000" book takes you through the whole

procedure of installing add-ons, and it's pretty complete. As an aside - be careful with Seagate hard disks. There are still some on the market which seem to have very long self-diagnostic startup routines, so long in fact that by the time the Amiga wants to talk to it, it's still not ready, and you end up warm-booting a few times to get it going. Seagate has since changed the necessary ROMs, so be careful about old stock.

Building Your Own A3000?

With an ECS chipset, A2630, A2091, and FlickerFixer, you can almost get to where the A3000 starts out, minus the 32 bit chip RAM and 32 bit DMA. Also, A2630 memory is only as fast as the slowest A3000 memory. There is no way to add 32-bit chip Ram, the Zorro III slots, or the new "fast" slot.

Or not yet anyway. Use of Nic Wilson's upgraded "SysInfo" program on both the A3000 and an A2500 fitted with a GVP 3001 68030 card indicated that internally the A3000 was much faster - this was determined by first running NoFastMem to turn off all Fast memory and then noting the relative speeds.

The 2500 system was slowed down to about 80% of the speed of a standard Amiga B2000 while the A3000 was still running double the speed of the standard machine. This indicates that when you've got a situation of not much fast memory left, and/or a lot of floppy disk access and/or any case of increased access of Chip ram, the A3000 will show its speed.

In short, the A3000 is smaller, faster, has more memory on the motherboard, more built-in options, less need for expansion cards, more chip memory. On the other hand, it is less expandable.

If you put in a bridgeboard, one PC expansion card and something in the video slot (genlock), then you

only have one slot left. A2630 card users have ROMs on the card, but these are not compatible with the ROMs on the A3000 - rather, they are for the menu that allows you to switch between 68000 and 68030 mode (plus the Amix button). They are 32Kbyte roms.

Criticisms

The 68030 and 68881/2 are not Pin Grid Arrays (PGAs, or socketed) but rather surface mount, which means that they are soldered in directly. The oscillator is also soldered in.

Replacing these chips with faster ones is almost impossible. In Australia, this shouldn't affect us immediately since we'll all have the faster set-up, but what if we can get our hands on faster chips? Presumably the logical upgrade from the 25-meg A3000 setup will be a 68040 card plonked into slot waiting on the motherboard.

On the schematics, however, the possibility of both surface mounted and PGA setups are described, so it seems that Commodore has designed for all eventualities.

There are no 5.25" SLOTS! Once again, no room, but only of interest to BridgeBoard users, I'd say, and to use the A3000 for IBM work seems to be missing the point these days. Only SCSI drives are supported - there's no provision for less expensive ST-506 drives.

The A3000's not cheap - although that depends on your point of view and reason for buying. It is certainly better value by far than any alternative with similar capabilities, but at a retail price of around \$7000 including tax for the base machine described above, you're talking real money. You'll then need about \$830 for the 1950 monitor, \$500 for another 4 meg of ram, and so it goes. You'll need a good reason to buy one of these.

Is it Really Faster?

When I got the A3000, I had a standard issue A2500 on my desk. This was a perfect opportunity to do a few comparisons so I fired up *SuperBase Professional* with my database of about 3600 names and had both machines fast forward through the entire file. Surprisingly, it took the A2500 7 min 25 sec to get through it all; and the A3000, 8 min 8 sec.

This was basically a measure of speed of data retrieval from a hard disk, and there seems to be no explanation, even from Commodore. Anyone got any ideas?

According to Nic Wilson's Sys-Info program, the A3000 should be 1.76 x the speed of the A2500 and I'm sure it is, internally. But not getting data off the hard disk. I'll let you know when I find out more.

Conclusions

One noted Amiga commentator said: "The A3000 is not the Amiga that enthusiasts have really been waiting for, the one that the old 'Ranger' stories spoke of, the one with eight bit and 24 bit colour, 1280 X 1024 resolution, 32 bit 28MHz chip RAM bus and CMOS custom chips.

"I know Commodore (or at least, Commodore's engineers) want to make a machine like this. So I say: let the A4000 rumors commence!"

I could agree with this - the A3000 as it stands is the current Amiga architecture taken to the limit. That is a pretty high limit, and will be raised with 3rd party developments like the "ColourBurst" hardware (see this month's editorial), but the next Amiga should incorporate all of the features quoted above, and more.

In particular, it must have native 8 and 24-bit

colour to remain competitive in the fast developing world of "multimedia".

Capabilities such as extra half-bright, dynamic high-resolution, and hold-and-modify let you increase the number of colors on screen (up to 4096 in the case of HAM), but they either force you to swap palettes on the fly, a serious drain on system bandwidth, or don't let you define each pixel independently.

What About Unix?

According to Commodore: The release of Amiga Unix is not tied to the release of the 3000 or to the release of AmigaDOS 2.0.

They're working on HD floppies, which are required by UNIX. There are several options for adding these to the system, each of which involves "cleverness" rather than "new Paula".

The 68030 contains an on-board MMU (memory management unit; necessary for running UNIX). The A2620 68020 card comes with a separate 68851 MMU since that functionality is not in the '020. The A2630 68030 card also has full MMU abilities, again in the CPU.

According to info from an overseas download, AMIX has had its

first customer and it was a large purchase.

The product must be shipping by a certain date to meet Commodore's first customer's contract. I've seen the Unix running at Commodore on a 2000HD, and it looks good - typical Unix flavour.

However, moving into the world of marketing Unix work-stations is going to be difficult for a company which, to put it mildly, has its expertise well and truly in other areas, such as home computers.

It will be interesting to see how Commodore tackles this. Meanwhile, the Amiga 3000 represents a great effort by Commodore to bring the Amiga up to date, and they should be encouraged to continue this trend to create the final, indisputable, computer of the century. □

Tim Strachan is editor and publisher of the bi-monthly magazine-on-a-disk, *Megadisc*. This article was edited from the original review appearing on *Megadisc* 18 and reproduced in *Professional Amiga User* magazine with permission of Megadisc publishing.

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Did you know?

Amiga was originally designed as a super-games machine and was owned by the Amiga corporation, which ran out of money before the machine was ready market. The whole company went up for sale.

Jack Tramiel, founder of Commodore, made a desperate bid to buy Amiga as he jumped ships to Atari. Although he missed out, advertisements boasting about his new machine were already appearing on television - with none other than celebrity figure, Mr T.

To make a balloon... fly

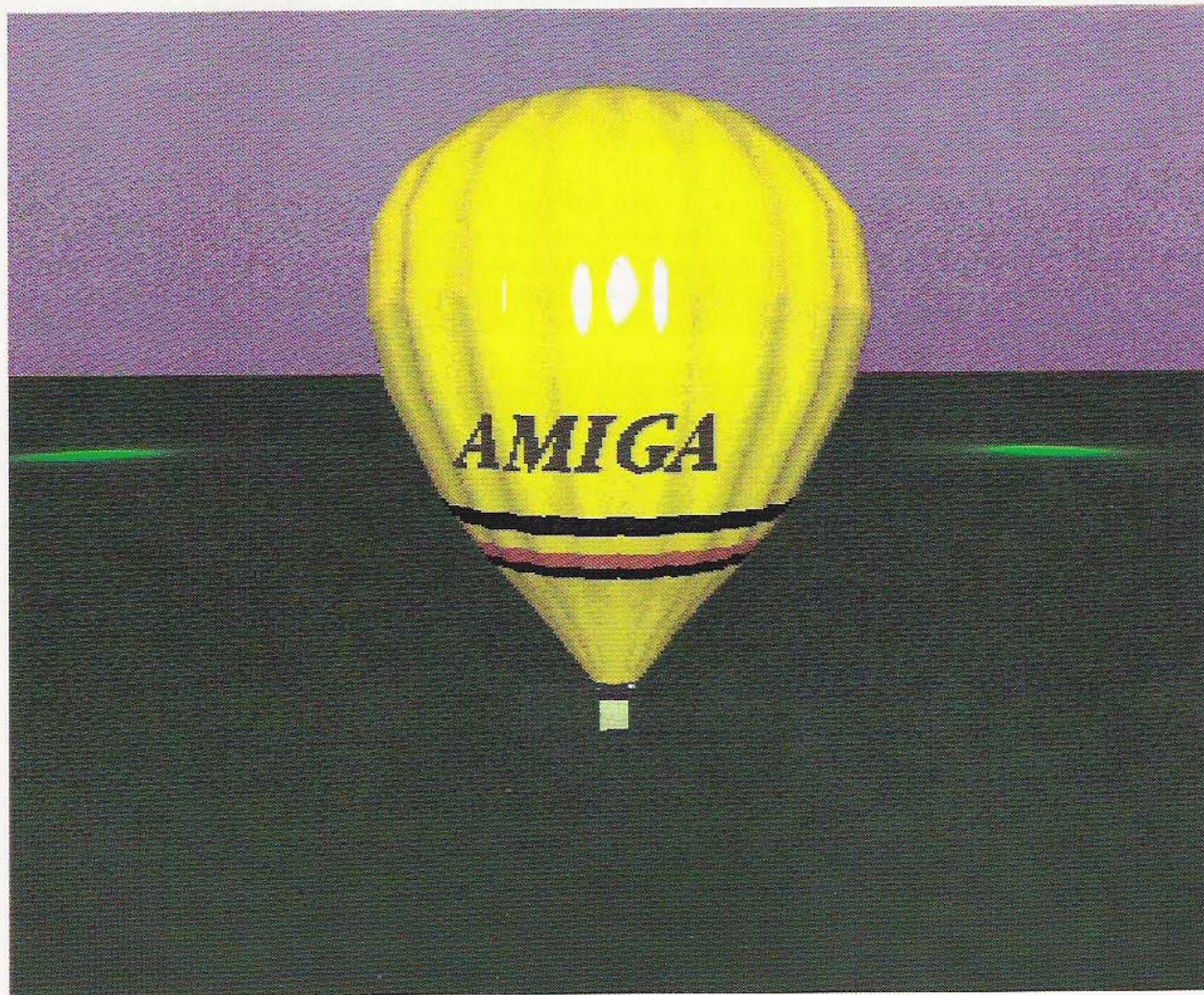
A step by step guide detailing the amazing balloon animation created by Peter Ward for the Commodore stand at this year's SMPTE show.

► I was recently asked to create an animation on the Amiga for the SMPTE show held in Sydney some months ago.

I was soon to discover that time was of the essence, and, that I had a little more than one week to "come up with" a ray-traced animation which was to blend in with live (and expensive) video footage of a hot air

balloon. Armed with a copy of time coded video footage, and the appropriate cut-in edit point, I was left to devise the animation.

There are really only two alternatives when it comes to ray-traced animations on the Amiga. *Turbo-Silver* and *Sculpt Animate 4-D*. I was initially swayed toward *Silver*, due to the ability of



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the program to "map" IFF images onto three dimensional surfaces.

In this case our "real" balloon had a "Commodore Amiga" banner draped on its side, and the thought of building a contoured three dimensional font in *Sculpt* did little for me. The dilemma was that I prefer the *Sculpt-Animate 4D* interface and the ability to create complex objects then animate them with a minimum of fuss and bother.

It then occurred to me that the shadow of "normal" three dimensional text could be cast on the side of the balloon by using an appropriately placed lamp. Couple this with the ability to use the many short cuts that *Sculpt 4D* can offer, the problem then became one of sorting out the details.

Step One.

Construction of the Balloon.

The early version of the balloon I had used for the animation was produced rather quickly by using several "cross sections" and the *Sculpt* "unslice" tool. To be frank, the contractor was not all that impressed with the first version of "the" hot air balloon.

Simply put, the ribs of the balloon were too deep, the contours in general were too blocky and there was not enough detail. Scrub version 1.0. I had no plans to work from, but simply the closing shot on video tape, so I needed a method to be able to "tweak" the general shape of the balloon to make it conform to the shape of the original as closely as possible. Start on version 1.1.

I started by using the EDIT ADD CIRCLE command, with ten points around the circle. To later aid the "tweaking" process

I selected all of the points in the circle and used the EDIT NAME SELECTED VERTICES command, naming the vertices something like "ribs_inner". A word of warning when naming vertices, do not give them too esoteric names, as when the list of named vertices grows into several dozen descriptions, it helps to establish some sort of nomenclature to keep track of what the names describe.

EDIT DO SUBDIVIDE was used to create 20 points around the now not-so-circular circle. I then used EDIT SELECT ALL, then EDIT DESELECT NAMED VERTICES, in this case the "ribs_inner" named earlier. This left me with the new sub-divided vertices, which I named "ribs_middle".

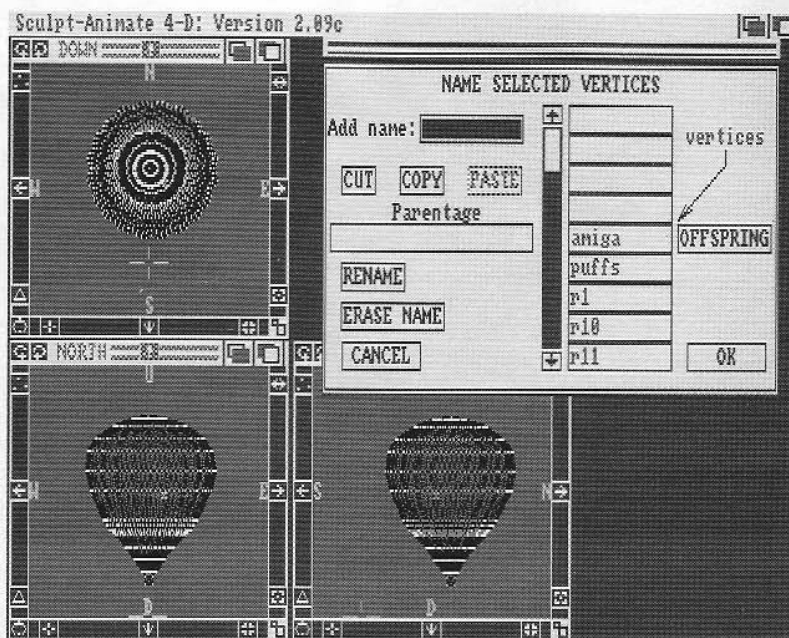
By repeating the process of selecting, sub-dividing and naming vertices twice more, I ended up with a circle made up of 40 vertices, divided into four groups of 10. You could also go about the process by adding a circle of 40 points to the tri-view, and methodically select and name the

vertices. This method is only recommended if you have no deadlines to meet, or get paid by the hour and never want to get offered another project.

By pressing the ALT key in conjunction with any letter of the alphabet, *Sculpt 4D* will assign that letter to the last selected menu command. So after using the menu EDIT NAME SELECTED VERTICES command, and immediately pressing say, ALT-N will assign the naming process to the "N" key. Using this feature in conjunction with *Sculpt 4D* "hot keys" (accessed by holding down the right "Amiga" key while pressing a letter) speeds up repetitive operations tremendously.

Step Two. Getting into Shape.

I could now go about the process of tweaking the ribbed surface of my balloon by selecting my previously named vertices and invoking the EDIT DO EXPAND requestor (or by simply pressing AMIGA-X). It was then simply a matter of expanding



some of the named elements of the 40 point circle and contracting others to form that characteristic billowed section of a hot air balloon. It is also a good idea to save work to a disk at regular intervals as many hours of work can be easily lost due to small animals, children, wives and similar acts of God.

Once happy with the cross section of the balloon, I invoked the SELECT CONNECTED and EDIT ADD DUPLICATE commands, again using the ALT-key combination to speed up any process later. After duplicating the cross section, the copy can then be moved using the "grabber" tool (in the tri-view).

To facilitate accurate placement of the duplicate cross section I expanded the tri-view "windows" to their maximum size, and placed the copied section directly beneath the original in the "Down" window of the tri-view. This process was repeated until I had about a dozen "cross sections" of a now tubular shaped "balloon". Still, not the right shape, but we are getting there! As it would be necessary to later modify the colour of various sections of the balloon, I then used my previously assigned "key" commands to individually select, name and deselect each of the "ribs" of the balloon.

By selecting individual "rib-sections" and using the AMIGA-X hot key to alter their sizes, I then formed a balloon "profile" while looking at the north tri-view window. Once happy with the profile I SELECTED ALL and made use of the EDIT DO UNSLICE command. This last command basically puts a "skin" over the rib-sections, leaving the balloon almost, but not quite, complete.

Step Three. A Splash of Colour.

I thought the balloon was looking good at this stage and decided to add a lamp to the tri-view, move the observer, place the target and have a look. A quick rendering using a full sized image and OBSERVER MODE SCANLINE PAINTING pointed out that the top of the balloon had a rather large hole in it!

To fix the hole I used DESELECT ALL, then SELECT NAMED VERTICES (I had called the vertices in uppermost "rib" of the balloon "Rib_1") to select the top of the balloon. I then used SNAP CURSOR TO CENTER, and pressed AMIGA-N to place a vertex in the middle of the upper-most rib.

Pressing AMIGA-B invoked the edge building tool, which I used to methodically build up (yes, all 40 edges!) the top surface of the balloon. DESELECTING ALL and selecting the newly created center vertex allowed me to use the "grabber" tool to nicely "puff out" the top of the balloon.

Simply selecting "Rib_1" and using the FILL tool would not have achieved the desired result, as there would not have been any way to subsequently round-off the top of the balloon.

The balloon also needed a basket, plus a bit of connecting rope between the two. The basket was easy, DESELECT ALL, EDIT ADD CUBE, erase the top face of the cube, select all points in the basket, and using the expand tool (AMIGA-X) shrink the basket to size. I then used the grabber tool to move the basket to the correct position.

Connecting the basket to the balloon was made easier by the "logic" that *Sculpt 4D* uses to build edges in the Tri-view envi-

ronment.

Provided no ambiguity exists, *Sculpt 4D* will let you build edges (AMIGA-B) between any two vertices without having to move the mouse pointer between different aspects of the tri-view. Simply put you don't have to specify the depth of an edge, provided its length is specified by two unique vertices in say the "down" view.

Now to add some colour. By selecting EDIT MODIFY FACES with the mouse or pressing AMIGA-F on the keyboard, one can modify the colour and texture of selected faces in your object. Here is also where naming the ribs of my balloon earlier on began to pay dividends.

With a few short ALT-key defined selections I was able to select various named vertices which defined the "bands" on my balloon. It was then a matter of adjusting the RGB sliders of the MODIFY FACES selector to match the *Sculpt 4D* balloon to that of the original on videotape.

For a finishing touch, the word "AMIGA" had to be placed on the side of the balloon. In this case I used the "AMIGA" object from an early version of *Sculpt 3D*, using AMIGA-X to re-size the word to the appropriate size and the grabber tool for object placement.

Lamp placement was somewhat more critical. The lamp had to cast the shadow of the word AMIGA in precisely the right location.

To check where the shadow would fall, I used PHOTO mode, but also selected OBSERVER IMAGE SIZE MEDIUM to help speed up the time taken to render the image.

Another helpful short-cut was to DESELECT ALL, place the cursor close to the relevant lamp and then use the grabber tool to

move it.

On more than one previous occasion, I was caught moving a lamp only to discover that several stray vertices had been inadvertently selected and also moved to an unwanted location. The lack of an undo feature in *Sculpt 4D* sometimes made this disastrous, so DESELECT ALL before moving any lamps is good insurance.

With a bit more "tweaking" of both lamp and Amiga object positions I was able to cast the shadow in precisely the right location. Hitting F8 set the rendering process in motion again, this time using an overscanned Photo mode as a final check.

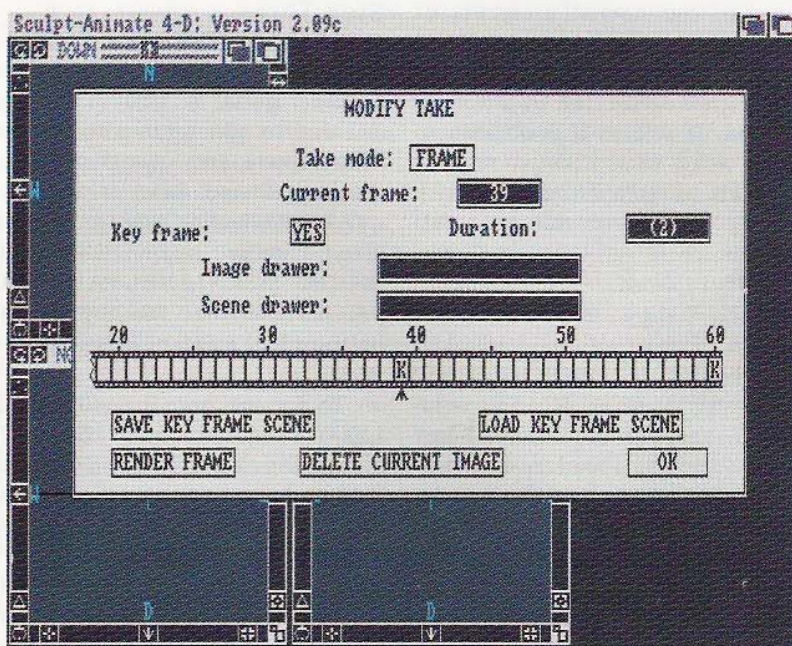
Step Four. Making the Balloon Fly.

The opening frame of the animation required that the observer be quite close to the balloon, looking skyward. The other constraint I had to work with was approximately six seconds of animation was needed.

The easiest solution was to use a "key frame" animation consisting of some 70 frames, the latter constraint imposed by "only" having three megabytes of memory to work with.

Seriously, when working with any moderately complex *Sculpt 4D* animation, five megabytes is entirely appropriate, though I have created animations which have readily consumed close to seven megs and then some!

Working with a hard disk and 68020 or 68030 board is also mandatory, as professional video work requires the use of overscanned images. These images generally take about 10 hours to render on a non-accelerated machine, but can often be rendered in less than 20 minutes on a 68020 board or approximately 10 minutes on a 68030 processor.



The use of floppy disks severely limits the size of any animation to what can be stored on the floppy, thus use of a hard disk also becomes mandatory.

Matching the perspective from the last frame of the "live" video to the first frame of the animation was again made easier by using various hot-keys and user defined ALT keys. A typical combination I used was "T" for OBSERVER TARGET and AMIGA-O for observer location.

By using these and selecting wire frame for the rendering mode, I was quickly able to match the ray-traced "camera" position with that used in the video.

I then matched the perspective using OBSERVER LENS SPECIAL, and tried various focal lengths and observer positions until I found a matching combination. Once happy with the result, I began the animation process by selecting PROJECT LOAD TAKE.

After typing in an appropriate title to my animation, to which

Sculpt will reply, take not found, create new one? or words to that effect, the next step was to EDIT MODIFY TAKE, and specify 70 frames for the length of the animation.

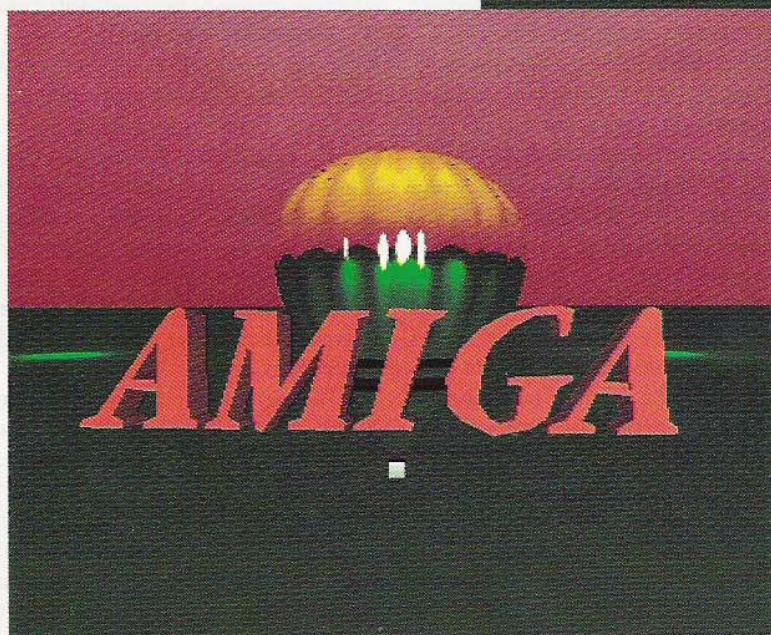
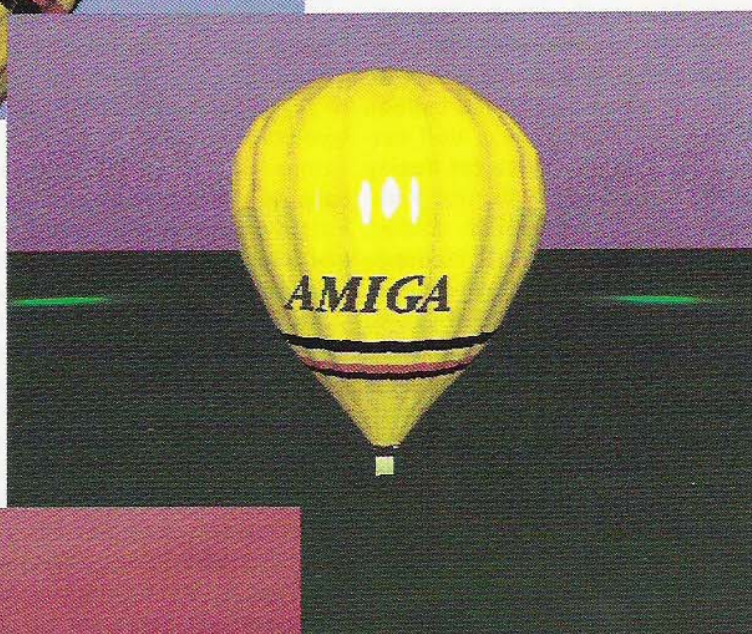
Clicking on the GLOBAL gadget in the modify take requestor reveals FRAME as the take mode. By specifying frame one as being a "key frame" and clicking on "O.K." the contents of the tri-view can then be saved to describe the position of the observer, objects, lamps and characteristics of everything else in the first frame of the animation.

Returning to the tri-view, I then moved the observer skyward and away from the balloon, while also changing the lens focal length to an extreme wide angle. EDIT MODIFY TAKE again, move from GLOBAL to FRAME requestors, and specify frame 40 as a key-frame and save the key frame scene. Click O.K. and back into the tri-view. By specifying subsequent changes to the tri-view as being "key-frames"



We start with a close up of a hot air balloon, with the familiar AMIGA logo on its side..

...then move vertically upward, pan down and dolly back..



..and the sky begins to change colour, the balloon takes on a metallic sheen then turns into a mirrored object as we move futher back to reveal the word AMIGA floating in mid air.

Sculpt 4D automatically works out the changes for the in-between frames.

Timing of the transitions is specified by the number of frames "in between" the key frames. So playing back at say 15 frames per second, a transition of observer location over 30 frames will take approximately two seconds.

Using this process I specified about six key frames in the 70 frame animation. At various key points global variables such as SKY COLOUR were changed, so that from about key frame 45 through 70 the sky changed from bright blue to deep red, with only the beginning and end colours needing to be specified. I also changed the texture of the balloon in the animation from a dull surface to a mirrored object (using AMIGA-F).

Texture changes in *Sculpt*, sadly do not gradually change over a series of key frames. Should the surface of an object be dull in Key frame 1 and, say, metallic in Key frame 20, the change will not take place until frame 20. After making a few other changes, the animation was nearly ready for final rendering.

Before rendering the final animation, it pays to DELETE ALL IMAGES in the MODIFY TAKE requestor, as any key frames previously rendered will cause either the colour palette to lock around an inappropriate group of colours, or the animation will come to a grinding halt should it find any inconsistencies in the rendering modes used for any of the images in the animation.

I also recommend using ANIM-5 for the RAM animation format in the MODIFY TAKE requestor, as, despite what the *Sculpt* manual says, the final animation file size is not only smaller but also renders and plays back more quickly.

It is always a good idea to PREVIEW any complex animation sequence using the MODIFY TAKE requestor. This will render the animation in wire frame mode and can often reveal problems with motion paths in a matter of minutes rather than days.

Once happy with the wire frame rendition select MODIFY TAKE, click on RENDER ALL and forget about using your Amiga for a day if you have a 68030 board, or a week if not. There is one other advantage of using the ANIM-5 animation format. It can be used by just about any other paint or animation program for subsequent touch up work.

The first thing that can strike you about PHOTO mode animations is not so much that they can look incredibly realistic, but also can consume vast amounts of memory. Apart from memory limitations for RAM playback, this can prove to be a problem if the animation needs editing, using packages such as *Animagic* or *Photon Paint 2.0*. Problems can be overcome to an extent by selecting SAVE IMAGES in the MODIFY TAKE requestor before RENDERing ALL.

No matter how long the animation, using this option allows individual frames to be loaded into a paint program. Using just such an approach I loaded (one at a time) all 70 frames of my balloon animation into *Photon Paint 2.0*, removed the occasional stray black pixel (an artifact of the 4096 colour limitation of the Amiga) and painted in a few extra details.

One important feature not exactly mentioned in the *Sculpt 4D* manual is: provided the naming of the file and colour palette of individual frames has not been changed from the original rendering, then the animation can be

re-rendered after any or all of the frames have been modified using a paint program.

Sculpt 4D when rendering an animation, searches for appropriately named image files. Provided they are all in the current animation directory, the program will go straight into compressing the images, with no further rendering taking place. This feature is also of great benefit if a partially rendered animation has to be aborted, then re-commenced at a later time.

Simply put, if the program had stopped rendering after frame 30 and provided the images were not moved to a different directory or the animation altered in any mode, it would start re-rendering at frame 31. This is a big plus if each image takes several hours to render!

The end result?

We start with a close up of a hot air balloon, with the familiar AMIGA logo on its side, then move vertically upward, pan down and zoom out, we dolly back (if such a thing can be done in mid-air) and the sky begins to change colour, the balloon takes on a metallic sheen then turns into a mirrored object as we move further back to reveal the word AMIGA floating in mid air.

A highlight (painted using *Photon Paint*) glistens on the word Amiga, and the sequence repeats. The whole project including object creation, motion description, Photo mode rendering and touch up took about 50 hours.

To be critical, the resulting six seconds of computer animation could have been improved, but then I only had a little over a week, and I can't think of another PC under \$5000 that could have been used to even attempt the project. □

The Perfect Partner Canon's Ion Camera

By Andrew Farrell

Desktop video, multimedia, database picture acquisition and desktop publishing; a few of many applications for Canon's still video camera, the perfect partner for the Professional Amiga User.

► Until now, getting still images into your Amiga involved digitising through a video camera, scanning using an expensive flat-bed scanner, or frame-grabbing from video. All these methods require you either have the object to be photographed, or have already committed an image of it to an existing media. The Canon still video camera offers a speedier, high quality alternative - which in the long run can also work out less expensive.

Not much larger than a normal instamatic camera, the Canon Ion still video is a smart looking device. It has a solid heavy feel, and quite a number of extra buttons and appendages. A small LCD display tells you which shot you're up to. The camera has a number of operating modes including delete, play-back and record. Images can be taken in continuous succession, or after a short time delay for self portraits. A small red LED in the view-finder lets you know a flash is required. The flash can be set to automatic or manual. Focus and video white balance are automatic.

Powered by a rectangular rechar-

gable battery - of which two are supplied - one is kept in the power pack charging up ready for your next photographic escapade, the Canon is a fully electronic device. Images are stored as still video shots on a two inch diskette which is carried in the camera. Fifty such stills can be stored on a single disk. The images are not stored digitally, but as a video frame. To transfer them into your Amiga you will need a digitiser or frame-grabber.

The difference in the end quality, compared to traditional image capturing devices, is that the image is not subject to poor lighting conditions during digitising, or by motion blurring during a frame-grab from video. Unlike scanning, there's no need to pay or wait for a colour or black and white print. The resulting digitised pictures can be used in a presentation, to create artwork or be stored in a database.

Desktop Publishing

If captured using *Digiview* and a colour splitter and saved as a 24 bit-plane image, or using *Framegrabber 2.0* in 8-bit planes, the data can be used to produce 16.2 million colour or 256 grey scale pictures respectively - ideal for desktop publishing. Certainly professional quality. The only limitation is the size of the image, which will vary depending on the line density at which the final images will be reproduced. Some examples are included opposite.

In our first issue, opposite the contents page and on the front cover were a number of pictures taken using the Canon. All turned out reasonably well, although the front cover suffered from a dreadful black

Cannon Ion Camera Specifications

Type: Electronic lens-shutter camera
Image Pickup Device: 1/2 inch CCD (786 pixels horizontally)
Recording/Playback Mode: Field mode
Video Signal: PAL colour format
Recording Medium: Still Video floppy disk
Lens: Built-in, fixed-focus type with macro mechanism for extreme close-ups at 30cm.
Focal Length/Aperture: 11mm (equivalent to 60mm on 35mm cameras), f/2.8.
Shooting Distance Range: 1m to infinity (30cm from CCD image pickup surface in macrophotography).
Viewfinder: Real-image secondary imaging finder. Magnification: 0.55x, Finder overage: 84%, Dioptric adjustent: -4 diopter to +2 diopter.
Light Metering System: Feedback AE with external photometric sensor and CCD signal.
Exposure Mode: Program AE (1/30 sec, f/2.8 to 1/500 sec, f/22)
Metering Range: EV8 to EV18 (equivalent to ISO 100)
Exposure Compensation: +15 EV (via exposure compensation button)
Flash Sync Speed: 1/125 sec.
White Balance: Automatic tracking system
Shooting Mode: Single-image and continuous (3 images/sec.) shooting.
Self-timer: 10 second delay.
Flash: Built-in, light-amount adjusting type.
Flash mode: Auto (at EV8 or below), ON/OFF.
Flash-coupling range: Within approx 3m.
Video Output: 1Vp-p, 75Q, unbalanced (2.5mm 0 mini-jack).
Horizontal Resolution: Recording/Playback: 300 TV lines (min.) Playback: 350 TV lines (min.)
Playback Function: Playback single image or continuous images (approx 4 images/sec.) by means of Forward or Reverse buttons; playback automatically cancelled when single-image display exceeds 2 minutes (when using Battery Pack BP-4P) or 15 minutes (when using Battery Charger BA-24P/AC Coupler AV-C25)
Erasure Function: Single-image erasure
LCD Panel: 7-segment, 2 digit LED alphanumeric and mark lighting or blinking for track number, shooting mode, disk condition, battery condition error.
Viewfinder Information: LED glows for flash-charging completed or blinks for out of the low-luminance interlocking range, flash charging.
Warning: macrophotography.
Disk Initialization: Normal mode; Head automatically sets to the empty track next to last (highest number) recorded track.
Insert mode: Head manually sets to a recordable track with Forward/Reverse buttons
Power Source: Cannon Battery Pack BP-4P (exclusive lead-acid battery, 8V, 200mAh)
Battery Life: Recording: Approx 800 images without flash use. Approx 200-300 images with 25% flas use (at 25 degrees C when fully charged).
Playback: Approx 10-15 minutes (at 25 degrees c when fully charged)
Tripod Socket: Provided on the optional Action Grip AG-C25
External Colour: Ivory white or black.
Dimensions (WxHxD): 142 x 34,5x106mm
Weight: 425g (without battery) 490g (with battery)

- All data are based on Canon's Standard Test Method
- Subject to change without notice
- This camera conforms to the Still Video floppy system agreed upon by the Electronic Still Camera Standardization Committee.



Edwin Huang, ex-Commodore marketing manager, snapped during the A3000 launch at the Commodore stand during the Sound and Vision Show (SMPTE) at the Sydney Showground.



Melissa Jordan, from the Software Bakery, during her lively demonstration of Bars and Pipes - also at the Sound and Vision Show. Rumour has it that Edwin Huang is now working for the Software Bakery in the United States.



Tim Strachan, smiling profusely after we decided that since he published a good review of our first issue in Megadisc 18, we would stop sending him virus ridden disks.

mask which made the A3000 keyboard shot appear very dark. I've found that once you've got the image into the Amiga you will need to carry out some processing before inserting the data into your folio. Most images need to have the *Art Department's* gamma correction facility used to improve the overall brightness.

Grabbing using *Digiview* is slow, requires a colour splitter for colour shots, and is generally difficult to predict the end results of each digitisation until the entire image has been captured. Using the *Progressive Peripherals Framegrabber* you can preview an image before grabbing, which only takes a few seconds anyhow. By comparison, the *Framegrabber* will cost you about twice the price of an equivalent *Digiview/Colour Splitter* setup, however the software is far more elegant and the process considerably quicker.

Multimedia

Grabbing images for multimedia applications is easy when you can go to the object or scene, take the photograph and return to your office to digitise the still. The resulting quality, providing the scene is reasonably well lit or you use the in-built flash, is excellent. Production times are reduced, especially if a high speed digitising device is used to grab the images.

Additionally, using an RS-232 interface, the new separate Canon still-video replay device can be controlled for presentations and multimedia productions. *AmigaVision* and *Showmaker* could both drive the device using an AREXX port or CLI commands.

How it Works

An electronic lens-shutter ushers light into the Canon through the usual series of lens options, including a small 11mm telephoto fixed-focus attachment. The picture is focused on a tiny 7 x 5mm 'charged coupled device' (CCD). Although so small, a horizontal resolution of 786 pixels is produced. The CCS converts the image into electrical signals which are then stored on the floppy disk. Full PAL compatible colour video stills are stored.

The entire process is very fast, enabling rapid shooting at up to three pictures per second. Flash photography and macro shots are possible. Once you've got all the right angles, the results can be viewed on a standard television by means of the RF adaptor. Alternatively, you can connect the composite video signal into your VCR or computer.

Each disk can be deleted and reused. Individual shots can be erased by pressing a combination of buttons which ensures you won't lose shots ac-

Review

cidentally. Pressing the review and record buttons together will place the next blank frame ready to be filled with a new image. In this way you can easily selectively delete shots when viewing the images, and then return to the job of taking photos, able to jump around the disk and happily fill the blanks.

A Consumer Device?

At over \$1000, the Ion makes an expensive camera. I tried to imagine how the average consumer might use the device without a computer. It turned out to be useful when we were looking for a new home to rent. After visiting a number of flats in a variety of suburbs, it is easy to find all the kitchens, lounge rooms and balconys turning into one big home.

However, with the Canon slung over my shoulder, a quick snapshot of rooms which mattered and the views off each balcony - all of which could be reviewed the same day as soon as we arrived home, proved to be invaluable for making an informed decision. No doubt, real estate agents would find this facility useful for helping sell a property to the client without so much driving around.

There is no easy way to turn the captured images into a standard colour print, however, some well equipped bureaus now offer a service whereby Canon still video images can be printed on a high quality colour photocopier. The results are acceptable for cataloging your collection.

Disks are certainly a lot less hassle than film. You also save money on processing. Like a video camera, I found it was great fun reviewing shots from a day's outing as soon as we arrived back home. Still, a rather extravagant use of such an expensive device and something for which a video camera would probably make better sense.

Conclusions

In use, the Canon proved to be reliable and functional. The rechargeable batteries lasted well, and the video stills always looked good. The camera has great novelty value at gatherings. Best of all, it saved us time and money in producing this magazine. Over a period of months, the camera would eventually pay for itself as an alternative to 4" x 3" black and white prints. Fantastic potential as a multimedia input and playback device. Canon are gearing up as a serious participant in this growing market area.

Recommended Retail Price
\$1299

For further information
call Canon on (02) 805 2000



✦ Using FrameGrabber 2.0, I captured a series of images which are automatically placed in consecutive positions by the FrameGrabber 2.0 software. These pictures were taken in the continuous shoot mode which takes around three frames every second - ideal for generating simple animations.

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Professional Amiga User

Jumping graphic formats

by Dennis W. Nicholson

There is now a considerable amount of commercial graphics and desktop video software available for the Amiga, but we always seem to crave for more. It also seems that the 'new' releases can never arrive fast enough to satisfy our needs.

► But there is a wealth of graphics-related software available to all users if they care to look...Shareware. "Oh, no! Not Public Domain stuff?!"

Well, yes and no. Shareware is released to the public with certain conditions attached, if you use a program then you are obliged to forward its creator a small sum of money, (usually \$10-\$20).

The majority of shareware developers produce their masterpiece, usually at home in their own time, without any backing from corporate software distributors. The shareware principle is a good idea in theory, 'try-before-you-buy', but unfortunately there are very few end-users who will honour an author's request for monetary compensation.

Without such dedicated developers the Amiga would be without programs like *VideoScape-3D*.

by Allan Hastings (Aegis/Oxxi), *Sculpt-4D* by Dr. Eric Graham (Byte-By-Byte), and *Edit Decision List Processor* by Mike Berro (MicroIllusions), all these started life as Shareware programs. Listed below are four excellent graphics-related Shareware utilities that have capabilities not found in the majority of commercial Amiga software.

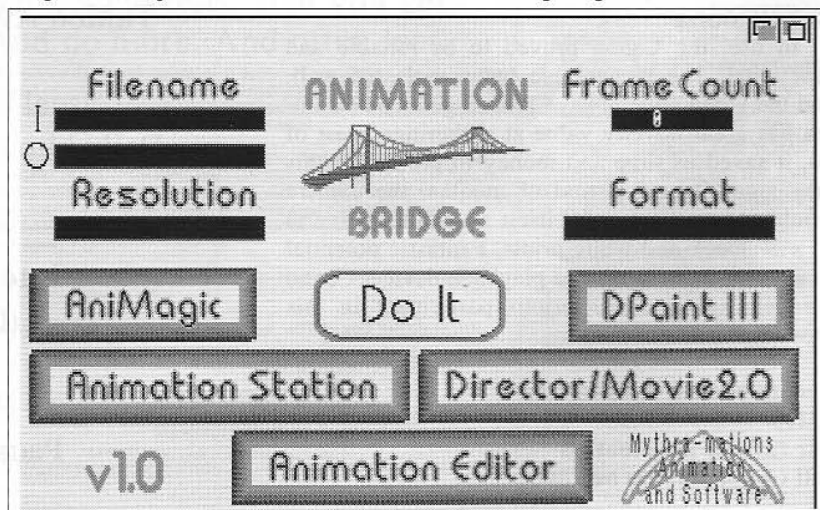
ANIMATION BRIDGE

Copyright © 1990 by Ron Tarrant and Mythra-mations Animation and Software. Although there is a standard for IFF animation files, (referred to by most people as ANIM-5 or Anim opt 5), a lot of reader programs and editor/special effects packages have problems with the variations of the format. For instance, some readers allow changing the colour map 'on the fly' while the animation is playing, others tend to abort, or even worse, crash if they find more than one colour map in a single animation file.

These problems WILL eventually be fixed by the companies who have released the original products, but in the meantime animators still have deadlines to meet and cannot waste time pulling animations apart and re-assembling them in order to get from one program to another. Enter *Animation Bridge (ABridge)*, the interim solution.

When you are working on an animation that starts in a 3D rendering package, such as *Sculpt-Animate 4D*, and goes into a combination paint/animation package, (*Deluxe Paint III*) for some touch-ups, then moves into another program to have some special effects added (*AniMagic*), it can be frustrating for you as an animator when one of these programs will not load your animation file, or won't do the work required, because of some bit of information that is either missing or extraneous.

ABridge addresses these problems of going between the vari-



ous readers/editors of animation files. The program was designed to detect problems mainly with OVERSCAN anim files used in the following programs, *Videoscape-3D*, *SculptAnimate-4D*, *Deluxe Paint III*, *Animation Station*, *Photon Paint 2.0*, *Cel Animator*, *Animation Editor* and *The Director*. Another thing *ABridge* can do for you is strip out excess data from a *Deluxe Paint III* anim file. *Deluxe Paint III* sometimes saves large amounts of data that have to do with environment, (possibly Stencils, Locked Backgrounds etc).

One anim file in particular that was tested during beta-testing was over 900k before being processed by *ABridge*. After doing a conversion to *Deluxe Paint III* format (effectively 'converting' to the same format we started with) the file was just over 700k in length. *ABridge* had found and stripped out over 250k of unnecessary data!

If, for example, you try to load an anim file from *Videoscape-3D* into *Deluxe Paint III* you will be presented with an error message. Likewise, *Ani-Magic* files will cause problems for *Deluxe Paint III*, although the error encountered is different. Both of these problems are easily corrected by *ABridge*. The program has an easy-to-use interface and comes supplied with an extensive 'on-disk' manual.

ARexx capabilities are also included. The shareware cost for *ABridge* is \$20.00US, a small price to pay for such a big time-saver, especially if you are using it to help you earn money as an animator. A working version of *ABridge* is available on Fred Fish Disk No:359.

HAMLAB v1.0

Copyright 1990 J. E. Hanway. The purpose of HamLab is to

read 'foreign' graphic images, especially those created for high-resolution, deep-bitmap displays, and convert them to the Amiga's Hold-and-Modify (HAM) mode, while trying to preserve as much of the original's quality as possible. *HamLab's* Workbench interface allows for easy conversion, and the resulting HAM pictures can be displayed and saved in IFF format for importation into HAM paint programs, such as NewTek's *DigiPaint*.

Translation filters are provided with the program for GIF, Atari ST, Spectrum 512, and MTV ray tracer files. New filters can be added by simply adding a text line to a pre-existing configuration file. *HamLab* uses 24-bit RGB for nearly all intermediate calculations, and has a Boustrophedonic Floyd-Steinberg error diffusion (whew!) option which significantly improves the quality of some images.

In my opinion, it produces quality pictures that equal or exceed the best that I've seen, including ones made by ASDG's 'The Art Department'. In many cases, I think that the results look as good as, or better than, Dynamic-HAM files, without the disadvantages of either.

Using *HamLab* can literally open the doors to many, many thousands of specific computer image formats available on bulletin boards all over the world. For a disk with the complete version of *HamLab*, including the latest set of input filters, and example filter source code, send \$15.00US (plus postage) to: J. Edward Hanway 149 Scotch Pine Drive Rochester, NY 14616-1668 USA

LOAD IMAGE v1.11

Copyright 1990 by MXM. Written by Olaf Barthel. This small program (25k) has a lot of

quite remarkable features the authors of other readers did not even dream of. *LoadImage* loads anything that looks, smells and tastes like an IFF-ILBM file, even Extra HalfBrite and HAM are handled correctly.

It will accept overscanned pictures which require 1 Meg of chip ram, and you can scroll around in the bitmap if the picture is larger in size than the current display. It also takes care of the machine it is running on, for example, PAL images will remain PAL images on a PAL Amiga, and will be transformed into NTSC-images on an NTSC Amiga.

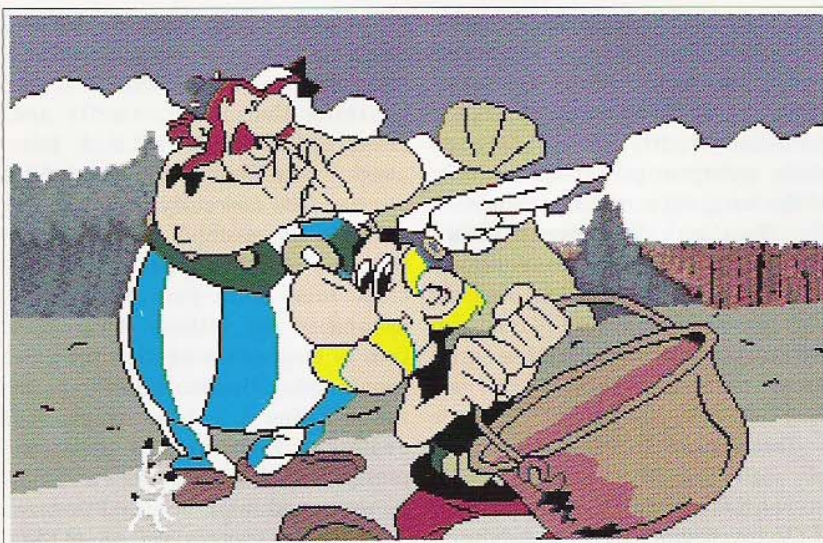
The program supports colour-cycling and can display multiple images, that is, you can enter more than one file in the command line. You simply hold down the Shift-key and select the icons of the images you wish to load, then double-click on the Load Image-icon. Load Image also includes graphic dump functions. Select any area of an IFF image you wish to print out and off it goes!

An Arp interface can also be made resident. *Load Image* v1.11 is on Fred Fish Disk No:355.

GIFtoRGB v1.0

Copyright (c) 1990 by Steve Schmidtke. This program was designed to take care of the fringing problem when GIF (Graphics InterFace) displaying programs on the Amiga try to display GIF images in HAM mode.

To get around this problem, *GIFtoRGB* is not a displaying program in itself. It is a companion program to the digitizing software *Digi-View*. Please note that you do not need the hardware setup to make use of *GIFtoRGB*, but you do need *Digi-View* version 4.0 software because the format *GIFtoRGB*



saves is *Digi-View's* 24 bitplane RGB-IFF files.

This format has the advantage of being simpler to represent GIF information in than the earlier formats of *Digi-View*. The results of processing a GIF image through *Digi-View* are phenomenal, fringing is virtually nonexistent, especially for words superimposed on the image that were almost unreadable before. Of course, the best results are achieved when the GIF image has many colours, the more colours an image has, the more closely it will mimic the real input of a digitizer, and the better job *Digi-View* will do in processing the image.

The author, Steve Schmidtke, asks for those of you wishing to express your interest in updated versions of *GIFtoRGB*, possibly with a graphical interface, and its own image processing routines (such as brightness, contrast, using the mouse to clip from a displayed GIF, saving, loading to and from multiple formats such as GIF, IFF, RGB etc), to please forward him a donation, or even just disks with graphics-related items of interest (public domain of course!) to, Steve Schmidtke, 15 Gilanna st.

Stoney Creek, Ontario, L8G 3X4 Canada.

And now for some 'cannot wait for this one' news.

COLOURBURST

This is an ALL-AUSTRALIAN product that is about to blow the pixels out of the overseas competition! A full 24-bit Video Paint Box system! ColourBurst will give Amiga users a total of 16.8 million to render images. Coupled with a 24-bit video digitizer (like *Digi-View* by NewTek) you will have a full-on image processing system for the Amiga.

The ColourBurst hardware is about the size of a pack of cigarettes and plugs into the Amiga (500, 1000, 2000, 2500) where the monitor connects. The monitor (or genlock) then plugs into the ColourBurst unit. The hardware will support the following screen resolutions, 320 x 256, 352 x 290, 320 x 512, 353 x 512 Display modes, 256 colours from a palette of 16.8 million in full resolution (8 bits per pixel) 16.8 million colours ON-SCREEN in full resolution (24 bits per pixel).

Too good to be true? Just wait! I've seen what this unit is

capable of, and when it's released (before the end of 1990) you WILL be queuing up at the counter to purchase one. The price you ask? I'm sworn to secrecy at this stage, let us just say that it's going to give *Digi-View* a run for its money!

Before I end this article let me take you back 23 years to 1967, the year Australia's then Prime Minister, Harold Holt, disappeared off the Portsea coastline while swimming, the year the Beatles released Sergeant Pepper's Lonely Hearts Club Band, and the year China exploded its first H-bomb.

I had just reached the age of 15 and was an avid reader of the British boys weekly magazine *Eagle*. An article in one of the issues of the time caught my attention, so much so that I cut it out and kept it. It makes entertaining reading of 'Futures Past'.

THE FUTURESCOPE - LOOKING INTO THE WORLD OF TOMORROW

How would you like to be able to solve any mathematical problem in a fraction of a second, summon any page of any book or newspaper instantly before your eyes, have all factual information known to man at your fingertips, all without leaving your own living room?

This fantastic dream of scientific achievement may come true by the 1990s if a plan now being worked on by top scientists in this country (UK) and the USA is successful.

These scientists are now beginning to realise that the wonder invention of our age, the computer, has so far been used in only a tiny, highly specialised field and the time has come to think about putting it where it may be of most benefit, right into the homes of ordinary citi-

zens. (Love this bit!) When your first domestic computer is carried in by the delivery men in the 1990s, you can ask them to take away with them your TV set, your telephone, your electricity and gas meters, and your typewriter, tape recorder and record player.

All these things will be as out of date as the gas lamp is today, for the computer will control all power supplies to your house, your videophone link and multi-channel TV signal.

At the moment a computer capable of doing what the scientists have in mind costs more than most men earn in a lifetime. The computer itself will probably look like a cross between a TV set, a telephone and a typewriter, and we won't have to actually to buy it, anymore than we buy our telephones today. We will pay a quarterly bill according to how often we use it.

And speaking of paying for things, there will be no need to carry money around any more. Any financial transaction will be done in a fraction of a second by credit transfer from one central bank account to another. All you have to carry round with you will be your own secret account code."

Was this writer the Nostradamus of the 1960s? We may smile at this aged article, but heed my words, folks of the future will fall off their hover chairs in fits of drug-induced laughter when they dig up an ancient Amiga! Hopefully they won't break their bottle of computer capsules...you know, the ones you will swallow to boost your memory capacity!

Dennis Nicholson is the Editor of Graphics-Palette, the graphics/DTV disk-zine for the Amiga.

□

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Making the Most of the S-VHS Advantage

by Don Sforcina

With its 640 x 400 graphics resolution, brilliant colours, and video ready architecture, the Amiga is an ideal partner for S-VHS. But how can you be sure you're really taking full advantage of this new crisp format?

► The S-VHS format was introduced a couple of years ago promising super picture clarity with its 400+ lines of resolution and superb colours with Y/C (Y - Luminance, C - Chrominance) component signal processing.

It was touted as the U-matic/VHS replacement format and many video producers converted to S-VHS while others looked on wondering whether they should also get onto the 'Here we go again' format roundabout.

S-VHS has had its knockers from the start, simply because it is an extension of the VHS format; but here the similarity ends. Some S-VHS users have obtained poor results while others have produced stunning footage rivalling Betacam and other broadcast formats. In this article we'll look at the S-VHS advantage, check the pitfalls and look at a V/C component genlock for the Amiga computer.

The S-VHS Advantage

What is the S-VHS advantage? Ask any JVC (the S-VHS originators) or Panasonic dealer and they'll give you a list as long as your arm - but briefly here are the major ones.

400+ Line Resolution

This is the S-VHS's main claim to fame. To achieve this major improvement in picture detail the luminance signal band width that determines horizontal resolution was altered from the conventional 3.0MHz to 5.0MHz. Hence even strands of hair and the finest of Amiga titles are seen clearly. Any equipment used to process S-VHS must have at least a 5.0MHz band width to maintain this luminance quality.

Improved Signal to Noise Ratio

Another reason for the improved picture quality is the much improved S/N (signal to noise) ratio brought about by using non-linear sub-emphasis circuits and by having the luminance signal in a higher and broader frequency band.

Separate Processing of Y/C Video Components

This feature is at the heart of the S-VHS technology. Whether it be recording or playback separate Y/C processing prevents significant video signal deterioration. The S-VHS format directly processes the separate Y and C signals whereas the inferior VHS format first passes the Y/C composite signal (Y/C combined) through a filter to separate it

into the Y and C components before processing them. This filtering process is performed by any composite signal processor in order to provide a Y and C signal output. As a result the Y (luminance) signal degrades and the associated problems of dot interference and cross colour distortion occur. These problems are not evident to any degree in S-VHS.

Special S-VHS Tape Development

The higher frequency and wider band width of the S-VHS signals requires multi-layer tape technology together with smaller magnetic particles and a smoother contact surface.

Newly Developed S-VHS TVs and Monitors

The clarity of S-VHS images is only completely evident when using S-VHS high resolution monitors and TVs. The Amiga monitors with separate Y/C inputs make an acceptable S-VHS monitor.

Unfortunately, one drawback is that even poor video appears okay on an S-VHS monitor therefore giving you a false impression as to its quality. A better approach is to use a lesser quality composite monitor in parallel with an S-VHS monitor to show the final result. To make the point further, brightly coloured Amiga titles will appear okay on a S-VHS monitor but bleed excessively on a composite monitor. The latter result is probably the one most clients will see in the end product particularly in that the final dub will be to the VHS format.

Improved Head Design and Drive Mechanisms

Along with the electronic design improvements have arrived many mechanical developments. The head drum design is one such area of attention. The S-VHS format requires a more precise tape transport with smoother contact with the head drum.

VHS Compatibility

When the majority of Australian homes own a VHS player this is an enormous plus for S-VHS. One set of equipment can be used for editing and for VHS dubbing too.

Improved Sound Quality

If you thought the picture quality was superb then listen to the great sound. With a dynamic range of better than 87dB the sound quality is CD standard in hi-fi mode.

The S-VHS Pitfalls

The biggest problem facing inexperienced users of S-VHS is that of dropout. When playing a S-VHS tape dropouts can appear as horizontal bars of hash on the screen.

The Quality of S-VHS Tape - Dropout Problem Number One

As with any product there are good ones but there are also better. Through experience I have found that the better tapes are TDK XP and FUJI H471S. The JVC and the new PANASONIC tapes are also acceptable. There definitely is a difference in dropout characteristics between the brands. A poor quality S-VHS tape used on professional S-VHS equipment will not give satisfactory results.

Dust! Dust! and More Dust! - Dropout Problem Number Two

I've often been shooting in what I would consider good conditions and replayed the S-VHS tape and found the result to be unacceptable.

Dropout of massive proportions affected just about all the footage. The problem, invisible airborne dust and pollen being attracted to an electrostatically charged milar tape. The antistatic tape backing reduces but does not eliminate this effect.

The solution, make sure the video camera, whether domestic or professional has adequate airtight sealing. After examining all the professional S-VHS cameras at the Sound & Vision show in Sydney recently none had adequate airtight sealing. The S-VHS format is very sensitive to dust contamination as are other professional formats and with more stringent head/tape criteria airborne dust is a real problem. Excellent S-VHS results can be obtained by observing a few rules:

a) As above - make all camera tape compartments airtight.

b) Wipe dust from the leading edge of a tape cassette before loading - wipe each tape cassette with an antistatic solvent.

c) Leave all tapes in a sealed tape holder or under a dust cover when not in use.

d) Edit in a dust free or dust controlled environment - vacuum the studio and wipe dust off all exposed surfaces regularly.

Dirty Heads - Dropout Problem Number Three

Learn your equipment and learn how to tell when the heads are dirty. Clean them if required but only after being shown how by a professional video maintenance engineer. Because of VHS compatibility don't be tempted to use poor quality VHS tapes in your S-VHS equipment, a few tapes later and its dirty heads followed by a few dirty words of cursing.

Use Professional Equipment

Although the domestic S-VHS cameras and VCRs are good the professional equipment puts the ic-

ing on the cake. A professional edit suite with Time Base Correctors further enhances the S-VHS result, particularly in multi-generation edits. Channel 7 in Perth regularly run episodes of a one hour Saturday night travelogue program filmed entirely on S-VHS. When S-VHS video is transferred to other broadcast formats through a Y/C transcoder the recorded results are readily accepted in the broadcast environment.

Stay Y/C Component Throughout

Going into composite at any stage gives results little better than VHS. The resultant filtering process required to separate the Y and C components significantly degrades the signal quality. Talk to Hagemeyer who supply JVC, or GEC who supply Panasonic professional equipment, about staying Y/C component. Both suppliers have Y/C component mixers and a full range of S-VHS editing equipment all processing separate Y and C component video. To complement this range one would naturally use a Y/C component genlock.

Y/C Component Genlock

The Scanlock Amiga genlock is the newest and most versatile PAL genlock on the market today featuring both composite and S-VHS inputs and outputs as standard. Because it is new it features Y/C keying using proprietary circuits for no loss in S-VHS resolution.

Two separate broadcast quality video circuits process the separate Y and C signals, reference Y/C is keyed with Amiga Y/C (encoded from Amiga RGB) to produce the keyed Y/C output. Other major genlocks use composite keying and hence lose S-VHS quality producing cross colour interference and signal distortions in their Y/C encoding/decoding processes.

To add to further confusion, inputs and outputs on these genlocks are marked Y/C, when in actual fact all signal processing is performed in composite mode. The striking difference between composite and Y/C component processed signals is visually evident when brightly coloured Amiga titling is used. Beside the Scanlock genlock fulfilling the S-VHS component video genlocking role it should be noted that because Hi8, MII and component Betacam also use separate Y/C signalling the Scanlock genlock also suits these formats.

Keep the S-VHS Advantage

Dust, poor tape quality and dirty heads are the main causes of dropout problems with the S-VHS format. The loss of resolution, problems of dot crawl and luminance/chrominance interference are mainly due to the usage of composite video equipment while performing S-VHS editing. When updating to S-VHS equipment careful consideration should be given to updating all equipment in the edit suite to Y/C compatibility. Don't be tempted to keep that old composite mixer, colour corrector or genlock just to save costs, you'll pay the price and lose the S-VHS advantage. □

About the Author

Don Sforcina is a communications and electronics engineering consultant who has been working in the development of microprocessor hardware and software for the last 15 years.

Over the previous four years he has become increasingly involved in all aspects of video production and supports the Scanlock range of Amiga genlocks Australia wide through his company Colour Computer Systems Pty. Ltd., telephone (09) 349 6492, fax (09) 345 1816.

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All backed up with no place to go.

Keeping a backup copy of your valuable data and software is critical to your good health, as Robert Lang explains.

It took a week of working late every night to set up my hard drive, but finally it was all customised so that I had everything ready at the click of a hotkey. Hours and hours; but I was proud, proud of the fact that it was my own. No one else had a hard drive set up like it, for I had done it all by myself. Formatting, copying, assigning, writing script files, and of course the all important startup-sequence. The final verdict - 48% full of my 44 meg hard drive.

Not bad considering all the software I had there ready for me to start developing with, and so out I went for the night, quite contented,

leaving my four year old brother playing *Silkworm*.

On return I found, as expected, my brother in bed, but not expected was my nervous mother leading me to my room to point wonderingly to the "NOT A DOS DISK" requester waiting patiently for a mouse click before throwing the towel in and letting the machine die.

I couldn't believe it. Although the next two hours were spent hitting my head against the wall chanting "BACKUP BACKUP BACKUP BACKUP" continuously, I later found out that luckily it was the smaller of the two partitions that had died, and so I spent 30 minutes repairing 4 megs of data until finally it was all back together again. You, of course, might not be so lucky.

Naturally I might not next time either, but I'm safe because I have

20 very important floppies holding a backup of my hard drive, something I should have done the minute it was setup. But then who would have thought you would need a backup after owning the hard drive for a week? Anyway, I hope you now realize the importance of backups. Businesses do it regularly, and so should you, so now on to the reviews.

I tried out three backup programs and decided to review and compare them all for you, so that when you leave your favorite computer shop with a hard drive tucked under one arm, under the other will be a backup program. I backed up 17733657 bytes (1410 files) with each of the programs as a test to compare them.

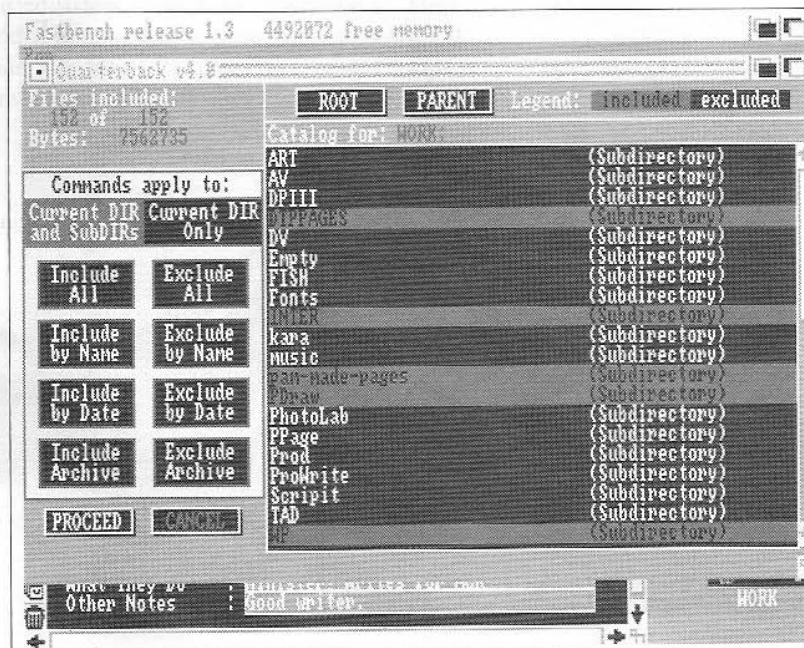
Note that restoration speeds differ too much because of the various options available, so I really couldn't test that, but they are naturally comparable to the backup times.

QUARTERBACK

I jumped for this one immediately, because it has a real cult following in the Amiga world. Ask anyone what backup program to buy, and they will immediately tell you "Quarterback, what else is there?". *Quarterback* is good, there's no doubt about it.

It is in no way as glamorous as the other two I tried, but it works and is extremely fast at what it does. There are no fancy graphics to keep you amused, and file selection is not as easy as *SuperBack*, but it's not impossible.

You have the option to simply



click on files or directories to select them, select by date, by archive bit (a bit set by most backup programs when backing the up so that you can do a quicker backup second time round by only backing up those without the archive bit set, and hence those that weren't backed up last time), or enter a pattern like #?.asm for all your .asm files or something like that.

So it's all there, and in no time you are ready to backup. Backup can be done onto two drives or just one, meaning you load two disks and walk away for a while, returning when it beeps nicely at you (the beep is selectable as nothing, audible, or just a silent screen flash) to swap disks again.

A nice feature that beats the others is that it recognizes when you insert the disk rather than you clicking somewhere to tell it to start. It's the little things like this that count in mundane operations like backups.

Quarterback supports faster backups for machines with more memory, plus a host of options relating to the way you want to back it up. Small speed increases are gained, especially by telling it not to format the backup floppies if they are already AmigaDOS - very nice!

Not long after my hard drive troubles, I had to salvage a mate's hard drive because of read-write errors all over it. It was here that *Quarterback* took the reins from the other programs and leapt ahead.

The *StarSoft* program wouldn't recognize the disk, and *SuperBack* kept bringing up a "THIS DISK IS NOT VALIDATED" requester, whereas *Quarterback* skipped the offending files and backed up the rest, meaning my friend lost about half a meg of 20 megs worth of files. Without *Quarterback* he would have lost the lot.

In my backup test, *Quarterback* won in all aspects, taking only 20 disks to do the 17 Meg backup in 19

minutes. R.R.P. \$99.95

SUPERBACK

SuperBack is very nice to use. Two file requesters showing full directory structure and contents of selected directories make it very easy to see what is happening, with impressive graphics to make it a dream to drive. Most of the options are there, with restoration made easier by options such as not overwriting already existing files and backup made easier by only backing up new or modified files.

Superback is not as good at selecting big batches of files like *Quarterback* with its pattern matching feature, but its display is much easier to follow so it is not hard to cruise through the structure selecting what you want.

SuperBack stands out in one field. It is not just a hard drive backup program, but in fact a device backup program. So you can backup RAD:, RAM:, FONTS:, anything that is assigned except DF0:. If you have various devices which you use a lot, like recoverable ram disks, tape drives, anything that is an Amiga Device, then you could back it up with *Super-*

Back.

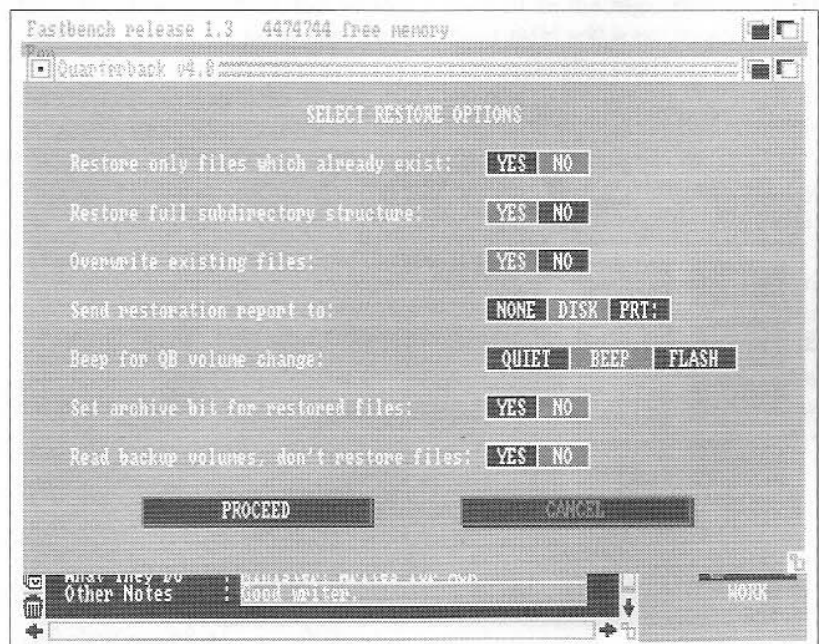
Unfortunately, it has its problems. I initially did my test with all my three megs of RAM enabled, but cut it back to one later just on a whim, and *SuperBack* failed. It would not backup my hard drive at all with only one meg running, because the directory was too big.

So, if I had my 44 meg hard drive with only 1 meg I wouldn't be able to use *SuperBack* at all. Another failure was with the problem mentioned in the *Quarterback* review. The hard drive in question would not validate, and *Superback* kept bringing up the requester to tell us this every file. Clicking on retry seemed to allow it to continue backing up, but we weren't going to sit there clicking for over 1000 files each time it came up.

Superback came out second best in the test I performed. It took 21 minutes, to do my backup onto 21 disks, so was a little slower than *Quarterback*, but not dramatically. R.R.P \$99.95

STARSOFT BACKUP UTILITY

This one is a little cheaper than the other two, and so that is why I picked it as well to review. It claims



on the back of the box to do great compression routines, and claims 20 megs in 30 mins, thus concluding already it is slower than the other two.

Again, the intuition interface in this one is better than *Quarterback*, but this time not as good as *SuperBack*. You have all the options of the above two programs, with selections of date or archive bits as in *Quarterback*.

StarSoft has the option to use up to four drives when backing up, beating the other two hands down. These are nicely configured so that they work fine with an A2000 with one internal and one external drive, a problem some programs have.

A fantastic "MAINTENANCE" section gives this program the edge. You can easily set the archive bit with this option, on selected or all files, and so easily keep track of what is backed up onto floppy and what isn't.

This program also fell apart in the serious test previously mentioned, this time it wouldn't even read the directory list. The only serious problem I had apart from that is that you can't abort the backup until it's time to swap disks. A little messy, considering I was benchmarking and so always starting and stopping.

In the test, it unfortunately

didn't support my hopes of the cheaper one proving good, backing up the test files in 28 minutes onto 25 disks.

Well, I bought *QuarterBack*. The way it handled the severely battered hard drive was what made it a winner, but I wish I had the graphics of *SuperBack* and the maintenance area of the *StarSoft* program.

If you are an absolute amateur user, you might prefer to buy *SuperBack* because it has a really excellent user interface, meaning that anyone can drive it with ease, even without consulting the more than excellent three language book. Don't forget that *SuperBack* fully supports backing up any Amiga device, so it might be worth getting if you are a multiple device user. If you see it significantly cheaper than normal somewhere, or just happen to be able to get it, then get the *StarSoft* backup program. It

does the job quite well, and although the maintenance area is unreal, it's really not justified against the comparisons - you can do without it.

Power Users

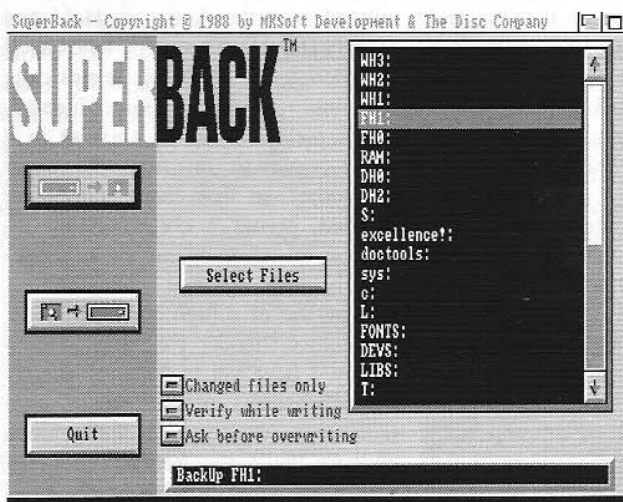
and people who want quick, dedicated backups will stick with *Quarterback*, which just goes to show that I could have saved myself a lot of time and trouble if I had put the blinkers on and let myself be directed straight to it by the general Amiga community. *Quarterback* is yards ahead of its competition....simply in reliability.

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Professional Amiga User

Keeping colours legal

As wonderful as PAL composite video is, there are still limitations. Which colours should you avoid? Peter Ward explains all.

► While the Amiga is evolving into the graphics workstation of choice for many professional video users, criticism is occasionally, and unfairly, leveled at the machine due to poor quality in a video taped version of an animation, title or whatever, produced by an Amiga.

What many users fail to appreciate is that the Amiga is perfectly capable of generating colours which, when encoded into composite video, are not within the bounds of a "standard" PAL video waveform. In addition, colours which look fine on an RGB monitor can often undergo a significant shift in both hue and saturation during the encoding process.

While it is all too easy to check an Amiga displaying a set of colour bars and then patch the output via a composite video encoder, or genlock/encoder to a waveform monitor, the problem still exists, that the Amiga can generate "illegal" colours, when a different Amiga output is encoded.

So what are "legal colours"? To find the answer one needs to examine how a PAL video waveform is composed.

PAL Waveforms

The PAL composite video waveform consists of the following: luminance signal (Y signal), the Blue-less yellow and Red-less yellow (U and V)

colour or chroma (C) signals, the colour burst, line synchronization and field synchronization pulses.

The Luminance signal, not strangely enough, conveys the information about the brightness of the picture. A properly encoded composite video signal also superimposes the colour or chroma signal, on top of the luminance signal to within very specific amplitude levels. (see figure one).

The chroma signal is modulated so that the colour signals will "cancel-out" when viewed on a black and white television, however, when viewed on a colour monitor, will also "staircase" at the appropriate luma level for a particular colour.

The vision carrier wave thus contains luminance information from 20% to 76%, Chroma information from 6% to 76%, sync information from 76% to 100% of the maximum amplitude of the sub-carrier wave and colour burst information of plus or minus 12% around the blanking level.

The colour burst is of particular importance, as it is this that is used to provide the phase reference signal which is used to decode the "U" and "V" colour signals from the modulated video waveform. A sloppy colour burst pulse from a genlock or encoder is bound to give problems with the quality of the encoded Amiga RGB graphics.

This is where quality has its price. Cheaper genlocks and encoders can tend to have a not so very accurate sub-carrier oscillator, hence not so accurate colour burst pulse, and hence inaccurate encoded colours. Accordingly the ability to apply high quality external sync, is one of the important features to look for on genlocks for the Amiga.

The Amiga generates an analog RGB signal, the band width or "information contained" being decidedly wider than that of most video encoder units. The direct result of this is that somewhere within the range of 4096 colours you may have selected, painted or ray-traced there is a shade of red, blue or green which has a combined colour and brightness levels outside of what a PAL composite video waveform can be modulated to. Hence the video encoded version of the snappy RGB image you have on your Amiga monitor will look different, be it in colour, brightness or both.

Keeping it Legal

One way of achieving "legal" colour values is to reduce the saturation and intensity levels of your colour palette when using a "Paint" program. For example, when using the de facto standard paint program, *Deluxe Paint III*, keep the palette saturation to a value of 13 or less, and you'll find that the encoded colours should record cleanly on to videotape.

A display mode often underutilized with the Amiga is Hold and Modify (HAM). This mode lends itself to video work by being intrinsically anti-aliasing. It can take up to three adjacent picture elements (pixels) in a HAM display to shift from one colour to another, so that "hard" edges are avoided, giving a corresponding reduction in cross-colour in a subsequently encoded signal.

The use of a high quality encoder or genlock/encoder can help tremendously. I have yet to discover exactly what "broadcast quality" means, as it seems that every encoder and genlock built for the Amiga has this property, however, examination of specifications

listed by the manufacturer should include a bandwidth of at least 5.5Mhz. Y/C compatibility also helps.

Separating the luma from the chroma portion of the video waveform allows more accurate recording of the original Amiga RGB signal by increasing the band width of the encoded signal. Cross colour is reduced (that annoying rainbow-like dot-crawl seen on high contrast edges). An effective method of checking the encoded appearance of Amiga graphics is to run a monitor via a composite signal generated by a suitable genlock or encoder.

Several don'ts become readily apparent. Highly saturated colours will bleed, single pixel lines will dissolve and areas of high contrast will crawl. The use of a good encoder/genlock will reduce all of these unwanted effects.

The encoder/genlock market has changed for the Amiga over the past 18 months, with current models giving respectable performance and some costing only a few hundred dollars. The high end of the market is still dominated by Neriki and Magni Systems (distributed by Quinto) and for professional applications it would be hard to go past either, both offering models with Y/C output with excellent band width and encoder sections.

For Complete Beginners!

For those of us with no-idea-what-so-ever, and without trying to be patronizing, a VHS format VCR is just about the worst format possible for Video work. Beta is not much better either. Even the use of a \$5000 genlock on a VHS or Beta consumer VCR will result in horizontal banding in areas of solid colour, gross loss of contrast and colour shift, and that is on the first generation!

S-VHS or Hi-8 is about the only solution to consumer based systems which can achieve good quality. Fortunately Panasonic, Sony and JVC are all now providing "affordable" Hi-Band VCR's, though all are in the four figure price level. For those wishing to enter even the low end of the video

production market, the cost considerations when using an Amiga based system, still rest with the video equipment. Simply put, a fully optioned Amiga 3000 costs less than a single industrial S-VHS VCR!

By far the best way of achieving high quality recorded material originating from the Amiga is to use the highest quality VCR that is available. For those of us without access to a D2 Digital VCR, or at least a Betacam VCR or MII, the Hi-band systems now entering the Australian market allow excellent Amiga to video-tape transitions for moderate cost.

The Future

The computer hardware aspect of Amiga generated video has become somewhat more complex than in the past, especially with the recent introduction of the Amiga 3000. Up until now, an Amiga 2000 with a hard disk, accelerator board and extra memory was the "system" of choice.

The Amiga 3000 in its present format is only marginally faster than a "turbo-charged" Amiga 2000 but costs considerably more. A full 32 bit-bus and no doubt future 68040 support will sway new users to the Amiga 3000, but added expense may well keep ex-

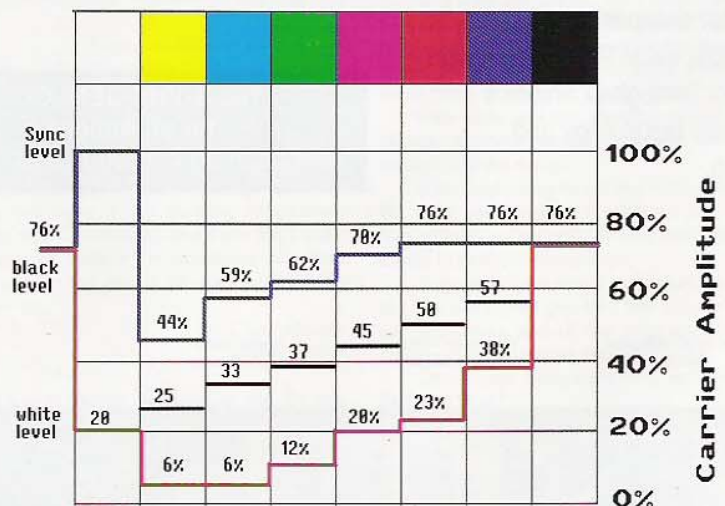
isting A2000 users where they are. Despite several innovations with the A3000, the 4096 colour barrier has yet to be broken.

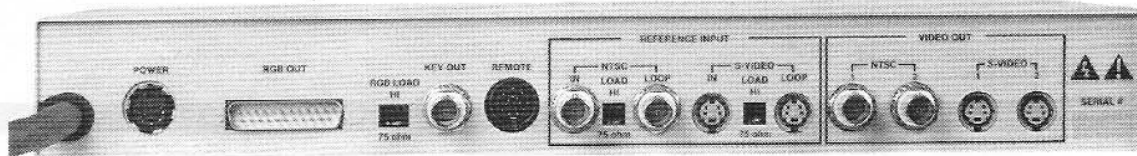
Among third party developers, software has already been developed which utilizes IBM compatible TARGA boards, and through running an IBM AT bridgeboard the Amiga can display 24 bit or 16.7 million colour graphics. While Commodore has yet to officially release a 24 bit graphics board, prototypes have been seen at trade shows in both the USA and Europe.

Once having seen a Quantel paint-box at work, the 4096 colour barrier on the Amiga needs breaking as soon as possible! By virtue of the fact that the Amiga can already render life-like three dimensional images, act as a very respectable character generator, and animate images as well, the future of the Amiga in video seems sound. Let us hope that Commodore will continue to appreciate these facts and further enhance the performance of the Amiga in professional video applications. □

Figure 1.

COLOUR BAR WAVEFORM AMPLITUDE LEVELS





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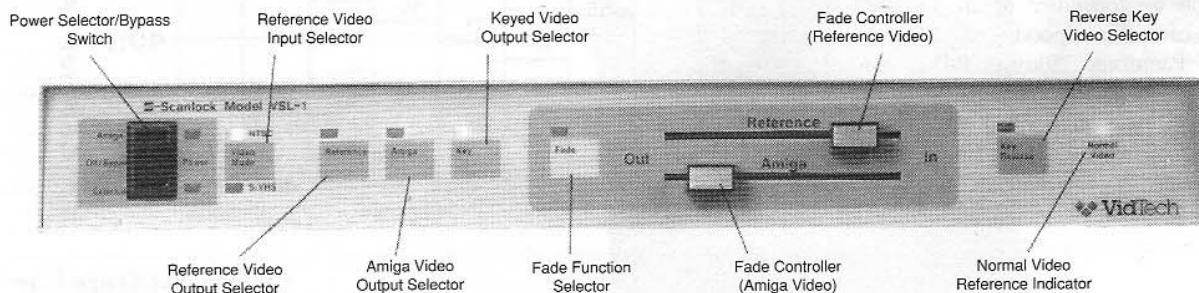
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CLOSE UP: Roland

by Phil Rigger

► Recently I had the pleasure of acquainting myself with the new computer music range of products from Roland and found them to be extremely powerful yet affordable. The range consists of a number of sound modules, midi input keyboards and pad controllers with the emphasis on ease of operation.

The three modules in the range are the CM64, CM32L and CM32P. Each module has only an on/off switch and volume control on the front panel, so access to the bank of sounds is implemented by sending program changes from your input keyboard or sequencer. After all, these devices were designed to be primarily used with computers, as opposed to live use. The CM32L is basically a re-packaged MT32 module, which was one of Rolands most popular multi timbral sound modules from the LA family of synths. It has the ability to play up to eight separate parts plus drums from a bank of 128 sounds with on board reverb. The sounds vary from orchestral instruments to analogue pads, brass, bass, piano, organ, through to the ever present orchestral stab.

It has stereo outputs plus a headphones jack as do all three modules. LA Synthesis combines the attack of sampled waveforms (the first 256 bytes) with synthetic sounds with each of the individual components called a Partial. The amount of polyphony is determined by the number of Partials that are used to create a sound as well as the number of parts playing simultaneously.

It isn't possible to edit the sounds from the front panel controls, as these are limited to on/off and volume, but because it is essentially an

MT32, it is possible to edit the sounds by using an MT32 patch editor as produced by *Dr.T's* or similar. The more complex the sound, the less polyphony available but with some careful arranging, it is possible to get an incredibly full and textured sound with many parts playing.

The CM32P is a 31 voice sample player. It has 64 sampled sounds on board plus drums and is able to play 6 parts simultaneously. Again it has on board reverb. The internal workings of the CM32P are a direct result of the development of the Roland U110 and U20 sample play RS-PCM keyboards. While not having the ability to sample, it is possible to use

the library of sounds now available for these two keyboards using the CM32P, as it has a slot on the front panel which uses the same sample library cards.

The upshot is that you can spend over two thousand dollars on a U20, which is cost effective in itself, or you can buy the CM32P for considerably less and use the same sounds, as many of the sounds on board are exactly the same as the sounds in the U20. The sounds themselves are excellent.

Someone at Roland's R & D department has spent considerable time making sure that the samples were taken very cleanly, with most if not all of the loop points smoothly implemented. A quick mention here about the noise levels from all three modules - the MT32 was always considered a little noisier than most people would have preferred, but these three pass that test with flying colours. They are very clean with excellent frequency response.

The CM64 is the top of the range module, and very simply it is a combination of both the CM32L and CM32P in one unit. It is without doubt, the most powerful multi timbral module of its kind available. For a start, it has 63 note polyphony. 63 notes...that makes for quite a large ensemble or orchestra. The midi channel designations are set, as they are in all three modules, with the CM64 allowing you to use the LA synth sounds from midi channels 2 through to 9, midi channel 10 for drums, and channels 11 to 16 for the PCM samples. A fine example of the power within the unit came from three midi files I recently received from *Bars and Pipes* designer,

● The ability to compose and arrange musical pieces can be an extremely rewarding exercise, particularly when you introduce a computer like the Amiga into the equation. For most people, the Amiga's 4 voice sound chip provides the means to explore simple sequencing and sampling with programs like *Sonix* or *SoundTracker*, but you can take it much further of course.

The use of professional sequencers like *Bars and Pipes* and *Music-X* with the addition of midi keyboards and samplers means that you can establish a fairly simple musical note pad with which to compose through to an elaborate digital music system. As in most things though it comes down to how much you have to spend and what your expectations are.

- P.R.

Melissa Jordan-Grey. They were written by a gentleman from the UK who is not only a conductor, but an avid midi fan. He created the full first movement, with what appears to be full orchestration of three classical pieces - one each from Mozart, Bach and Beethoven. I sat down to prepare these files in order that the CM64 would address the appropriate sounds so that they could be shown at both the SMPTE, and WCCE shows which were held recently. The wonderful piano and string sounds brought the pieces to life, with a variety of other orchestral sounds also being used ie. oboe, clarinet, timpani etc. Most people who heard these demos at the aforementioned shows were amazed to find out that the CM64 was playing everything. It certainly fulfills it's potential as I'm sure there was sufficient polyphony to keep doubling parts and adding other instruments, that is if you dare to mess with the classics which are very much etched in stone. Apart from the more orchestral sounds, there are many other useful sounds such as the variety of brass and bass patches. The fretless bass would be one that most professional people would be more than happy with. The basic drum sounds are uniform throughout the three modules, with the exception that on both the CM32P and CM64, there are quite a number of sampled sound effects such as a police siren which passes across from left to right, a train, helicopter, laughs, screams, guns and footsteps. Talk about giving your music tracks street credibility...rap central here we come.

There are two midi input keyboards in the range, the PC-100 and the PC-200. The essential difference between them is that the PC-200 transmits velocity while the PC-100 does not. They are finished in a light beige colour in keeping with the rest of the range and have a 49 note range. You can transmit midi volume, after-touch and continuous controller information, as well as design-

nating which channel to send on. They do not have any sound making capability of their own as they are designed to be used to play in the parts of your track, and have them played back by your midi module. The general response and feel of the keyboard is good, or at least as good as most synths on the market today and would be a useful addition to your computer music setup.

There are three other input devices as well as the keyboards. They are the CF-10 Digital Faders, the CN-20 Music Entry Pad, and the CA-30 Intelligent Arranger. The CF-10 Digital Fader is an easy to use mixing controller that provides operation similar to an analog audio mixer. It is designed to mix song data containing up to 10 midi channels created with your computer sequencer. Midi control change messages for volume and panning can be transmitted easily to external midi devices. Each of the ten channels features a touch fader which can be used for coarse volume level setting, increment/decrement buttons for fine stepped volume adjustment, and a panning button, all of which are located on the pads front panel. All of the CM modules respond to the various controllers, so it is possible set up what is akin to a digital mixer to control volume and panning changes, with the ability to record them in real time.

The CN-20 Music Entry Pad is designed exclusively for music entry data and it simplifies basic song data programming. Again you can send volume, panning, after-touch, pitch bend etc, but with the added advantage of allowing you to send chords or individual note information to your sequencer without the use of a piano style keyboard. The front panel has several assignable sliders, and an assortment of buttons that allow you to choose the chord type, pitch, range and velocity. For those of you who are not adept at playing a piano style keyboard, this may well be the answer.

The CA-30 Intelligent Arranger is an auto arranger that is specifically designed for making music with the CM-64 or CM-32L modules. It allows you to come up with a simple melody line and chord progression on your sequencer then process it through the CA-30, where rhythmic and chord rhythm accompaniment are added to flesh out your tune. Essentially it arranges your track and adds drum fills, chords etc at which point you can send the midi information back into your Amiga for further editing. A most useful device for people who would like to achieve a certain level of musicality without the normal practical skills that are required to play an instrument.

The last device worth mentioning is the LAPC-1 LA Sound Card. It is a CM32-L on a card for use with an IBM or compatible computer. By installing this in a computer, you are provided with an internal 32 voice synthesizer. As this issue goes to press, I am installing it in an Amiga 2000 which has an AT Bridgeboard installed. I was unable to complete this feat by deadline but should be able to provide you with details on how it works by the next issue.

Roland have certainly given consideration to the use of computers in music today by releasing this range. I was fortunate enough to hear the chairman of Roland worldwide address the Roland National Dealers Conference several months ago and it is obvious that part of the Roland ideology is to make music accessible to a wider range of people. Computers are the ideal environment for this ideology to be fostered, and it seems that they are certainly heading in the right direction. These products are definitely worth having a look at, as they allow professional quality sounds and facilities to be in the reach of people who might not normally have the budget to compete in the world of professional keyboards and peripherals. Other manufacturers take note. Roland have certainly set the standard here. □

How to create a Comic Strip

It's amazing how unamazed we can be with programs at first - sometimes a second look can reveal a whole lot of power waiting to be used!

► While flipping through my disk box last week, I rediscovered *ComicSetter*, a specialised publishing program which is used for laying out comics in two to sixteen colours.

Although I had used it in the past to create personalised birthday cards, I'd never taken the plunge and set out a comic, so now seemed a good time to jump in at the deep end.

The first step was to re-familiarise

myself with the user-

friendly manual, then think up an appropriate plot which I hoped to translate into "comic-ese."

Gold Disk's *ComicSetter* is based around the concept of laying out pages (as many as memory permits), which contain panels with varying attributes such as size, border, width and colour. Then choosing whether these coloured borders (frames) are to show.

The panels are then filled with clip art and/or other graphics (both bit-mapped and structured are permitted) and just as in the sister programs *Professional Page* and *Professional Draw*, a plethora of tools and options exist to make the job both easy and lots of fun. The page size is first defined, then panels are 'rubber-banded' into position.

As in *Deluxe Paint*, holding down the SHIFT button when rubber-banding constrains the panel shape to square. An alter-

native option allows one to select equally sized panels laid out equidistant from one another but I felt that this layout looked too sterile, so placed the panels manually.

My first attempts at creating a pleasing set left much to be desired but this was easily corrected by spending a few minutes with a sheet of graph paper (see Figure A), then transferring these graphed sizes to the PANEL ATTRIBUTES box.

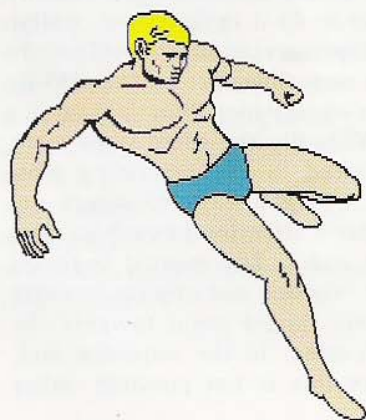
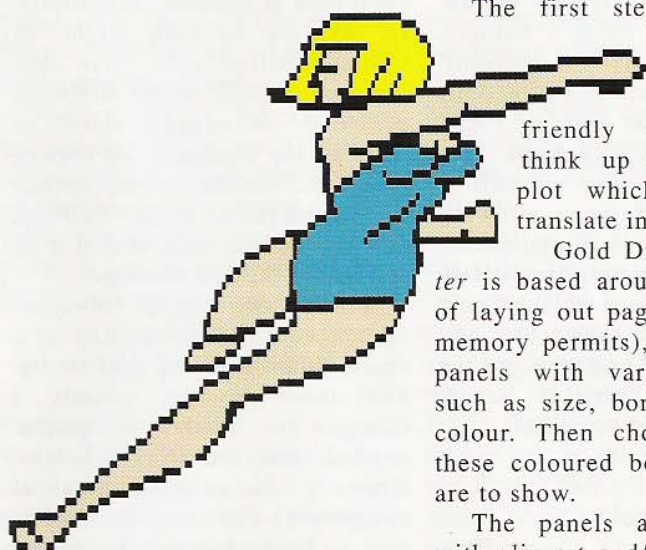
Having defined my page of panels, it was now time to let the creative juices take over, but first I moved to the Preferences menu and selected preferred UNITS (in this case centimeters) and Interlace ON (because it gives a more realistic representation of the finished page).

Next, I selected CHANGE GRID (size), SHOW GRID and SNAP TO GRID, all which would help me to position items more precisely.

Throughout the project, I found that life was made much easier if I altered the Preferences options as circumstances dictated, particularly MAGNIFICATION (which can toggle between 50%/100%/200% and SHOW FULL PAGE).

From past experience with birthday cards, I knew that I wanted black panel borders and here I used a width of four pixels which gives a solid look to the frames when they are printed.

These changes were quickly achieved by selecting each panel (Right Alternate) and then mov-



ing to the ALTER/PANEL ATTRIBUTES menu where position, size, scale, border width and border colour may all be altered. I now saved this "shell" and printed it out, just to be on the safe side - it's a lot easier to change the fundamental structure of the comic at this stage of layout, rather than find that you need to make drastic changes once the panels are filled with a multitude of objects and the framework of the comic is well underway.

Before printing, however, I selected ENVIRONMENT SETUP from the Project menu and entered the horizontal and vertical DPI (dots per inch) which I intended using in the final printout (in my case 120x144 for my Okimate 20 at its only permissible density of one). This step is important and is allied to the SCALEing factor which you set at printout time, to ensure that all pixels are printed and that the entire image fits neatly on the page.

The program defaults to an Epson printer setting of 120x72 DPI and these measurements need to be allowed for when choosing a scaling factor. Since the Oki's horizontal setting is identical (120) and the vertical setting is exactly twice the size (144), I would need to scale my printout at One : Two. But enough of settings and on with the fun!

Because I hadn't decided a title yet, I skipped this panel for the time being and moved to panel One. A quick change to 100% magnification (Right Amiga-Two) and the panel swelled to fill the screen.

I double-clicked on the bitmap graphic tool (the "face" icon) and drew out a box to fill the entire panel, whereupon the disk drives whirled into action,

presenting me with the usual Amiga directory/file choices.

I chose a background after referring to the printed guide supplied with the clip art and - hey presto! - up popped a window showing an oversized street scene. Needing just a small part, I "cut out" the appropriate portion and was then returned to the panel which now contained the clip. The clip was too small to fill the panel so by holding down Left Alternate while selecting the clipping (which now became known as an OBJECT), I was able to grab one of the control points which appeared around the object.

It was now a simple matter to select the highest magnification of 200%, then "pull out" the object to fit the panel's borders. Now I clipped out an appropriately posed villain and turned off SNAP TO GRID and on FAST MOVE, which changed the clipped object from an outline box to a ghosted image, allowing for its more accurate placement. At this point, I felt my villain was out of scale with the background, so I selected ALTER/CURRENT and changed the horizontal and vertical factors until he appeared just right.

Introducing: The Super Hero

Next came my Super-Hero and because I wanted to direct the reader's attention "into" the panel, I moved to the Edit menu and chose FLIP/HORIZONTAL, whereupon his reversed image appeared. Again, scaling alterations were needed.

Finally, I needed to touch up the hero's shoulder line, because the original clip had finished at his neck and the background now showed through this gap. I double clicked the drawing tool ("paintbrush" icon) and chose the

smallest possible brush size, then selected colour black and drew in the missing shoulders.

Now I changed to the fill tool ("pouring can" icon), changed the background colour to flesh tone and clicked on (filled) the shoulder gaps.

Only text was needed now to finish off Panel One. I wanted an introduction at the top of the panel and changed the palette colour to white, then double-clicked the speech tool ("balloon" icon) and chose a rectangular style. A text string window appeared in which I keyed a brief message.

Here, provision is made for variations in style (bold, italic, and underlined) and these may be combined if needed. Additionally, text can be Left- Right- or Center-justified and three special comic book-styled fonts are provided, in several sizes, as well as the standard workbench fonts. I returned to the speech tool to select a "think" balloon, entered the text, then scaled it up to enclose the full message.

Finally, two smaller "thought" clouds were created by keying a space (blank), in the text string. For these smaller clouds I changed the number of 'peaks' needed, and the peaks' height. Honestly, this program thinks of everything! For me, the hardest part so far had been keeping the text to an absolute minimum in order to fit it in the panel, whilst still preserving the storyline. It was now time for a quick SAVE, then on to Panel Two.

Virtually the same steps were followed in the remaining panels, trying always to direct the reader's attention to each successive panel. The manual suggests that "figures and objects in outer panels should point towards the next panel in the sequence and, when this is not possible, other

devices such as shadows or background design should be incorporated to this end."

A set of SEND-TO-FRONT(/-BACK) tools is provided for layering objects and I used this in Panel Two where I brought Amigaman "in front of" the text panel above his head, then brought the firecracker in front of him. Similarly in Panel Six, Virusviper's text balloon blocked off too much of the Super Hero, so this was rectified by bringing first Amigaman and then his speech balloon to the front.

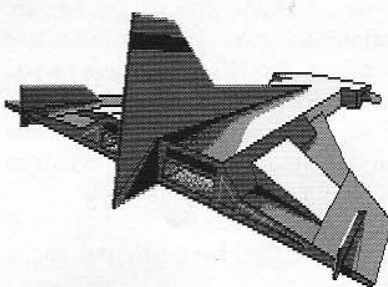
As Panel Four was too small to show a full sized Amigaman searching the editor's office, I tried to create this illusion by using a clip of his eyes which I cloned (CUT and PASTEed). These were scaled progressively larger as they "came closer to the reader."

A Source of Clip

None of *ComicSetter's* clip art seemed appropriate to represent the editor, in panel Five, so I turned to my trusty scanner to help out. As 'Handy' is modelled on Andrew Farrell, I scanned his picture which appears on the editorial page of *Australian Commodore and Amiga Review*, then loaded the image (16 shades of grey) into *Pixmate* and used its EDGE DETECTION feature to get an outlined shape.

Next I reduced the number of colours to two, then saved the finished image in IFF format. As this pic needed some cleaning up, particularly around the eyes because of the close proximity of the glasses, I then loaded up *Deluxe Paint III* because its magnification feature is superior to *ComicSetter's*.

At the same time I changed *Deluxe Paint's* palette to that of *ComicSetter* (whose RGB settings I had noted previously) and

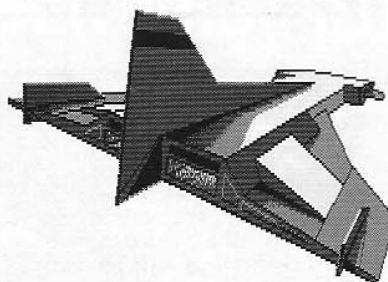


used the floodfill tool to color Handy - sorry for any poetic licence, Andrew! Upon returning to Panel Five, a quick horizontal flip brought Handy around to where I needed him and a fiddle with the scale tool adjusted his size. Handy's image is used again in Panel Nine, at a greatly reduced size.

By the time I'd completed Panel Six, I felt that there was too great a gulf between the editor's speech in Panel Five, and the action occurring in the following panel. At first I couldn't think of any solution because I had no spare panels to work with. Or had I?

After some thought it occurred to me that I could place scaled down figures between the panels if I created a new, overlapping panel and eliminated its borders by selecting a border size of zero pixels width. Presumably, changing the border colour to white would have achieved a similar effect.

This intermediate panel didn't need any background, just miniature Super Hero figures and a



few blobs of the villain's slime.

One of the features which I love (and which I probably overuse!) allows objects to 'leap out' of the panel boundaries. This extra dimension is achieved by positioning the object partly outside a panel and then choosing VISIBLE OUTSIDE PANEL/YES from the Object Attributes menu. I used this effect in many of the panels such as Panel Six where Amigaman is 'landing' or in Panel Seven where his punch goes through the frame.

This effect was also used to create the directional arrows between Panels Seven-Eight-Nine, although I could have just as easily created new, overlapping panels and given them zero pixels sized borders. These direction arrows were an afterthought once I discovered that my layout left some ambiguity about which panel to jump to from Panel Seven. I'll avoid this uncertainty in future comics.

Initially, all speech and text balloons were white but these tended to "disappear" in Panels Six and Nine, where I had intentionally omitted backgrounds so that attention would be fully focused on the action or message content. My work around was to go back and re-colour each character's balloons with an identifying colour but I doubt that this is a particularly acceptable solution in traditional comic style. I really need to study 'The Masters' to see how they solve this problem.

Finally, I placed a "To be continued...." box in Panel Nine, then transferred my attention back to the Title Panel. Not wanting another panel shape here, I created a text balloon across the full page but hid the panel frame as described previously.

I wanted the name "AMIGA-

MAN" to stand out from the rest of the title but only one font is allowed for each balloon. To overcome this, I keyed in then scaled down the first three lines, then moved them up slightly to allow enough room to place another "balloon on top of a balloon," which used a different font.

Whilst I would normally key in the exclamation mark immediately after the last letter in "Amigaman," it was kerned much too closely with this particular font and therefore needed a space placed immediately before it.

The title still seemed sparse, however and did not look balanced until I put clips of the Super Hero and his alter-ego, at either side. To create extra impact I placed his foot heavily on the panel below and used both the VISIBLE OUTSIDE PANEL/YES and SEND-TO-FRONT tools here.

One last check and I decided to add a small box containing "Episode 1"; a signature in the Final Panel and clear numbering in each panel. In several panels I re-edited the text balloons by adding leading spaces, so that the text moved farther to the right, leaving room for the panel numbers. A last couple of tweaks here and there to move characters ever-so-slightly, and then it was time to roll the presses!

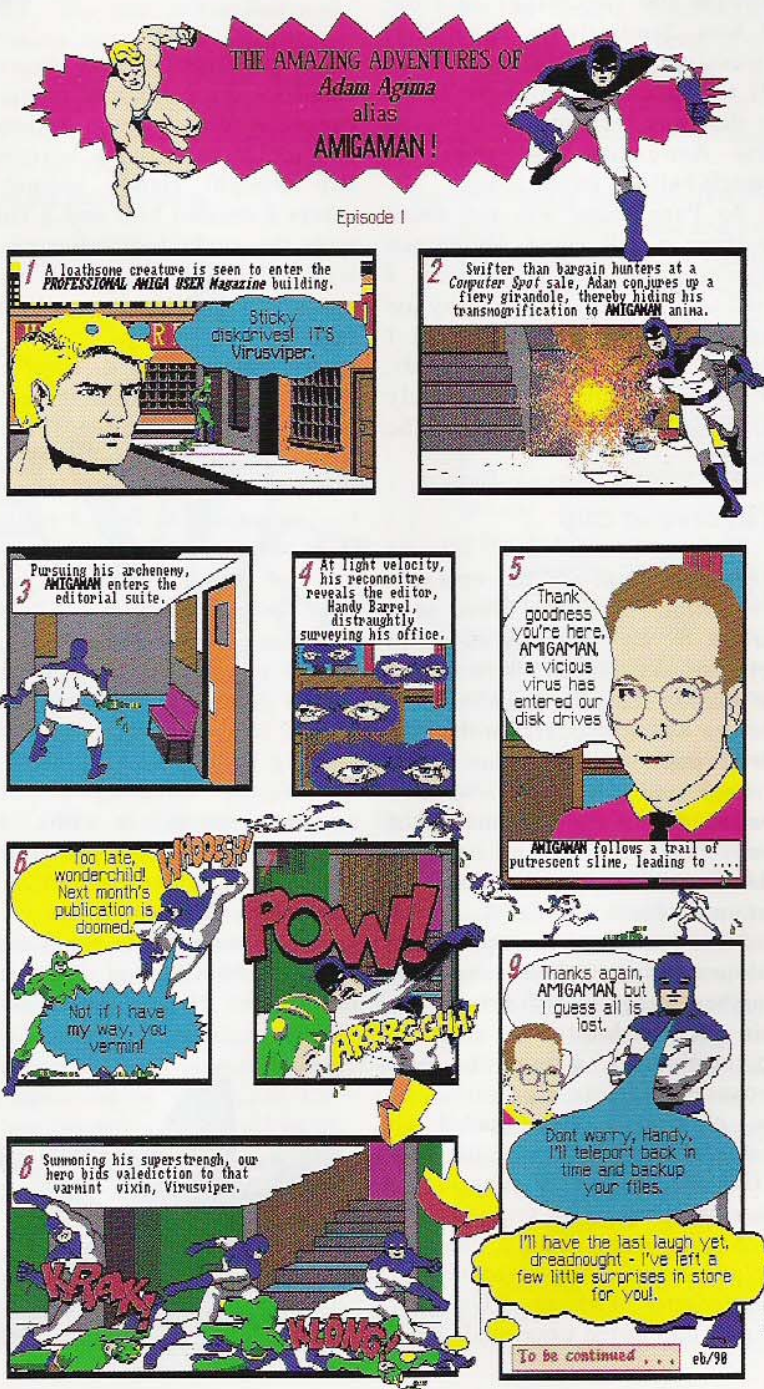
I was pleased with my first effort, especially as it looked "comicish," at least to my untrained eye. *Comicsetter* proved to be lots of fun to use, so much so that I've ordered several "how to create comics" tutorial books from a specialist comic store. The program threw up a couple of minor bugs and one major one which caused a visit by the dreaded Guru on two occasions.

Luckily, my golden rule of saving after each ten minutes

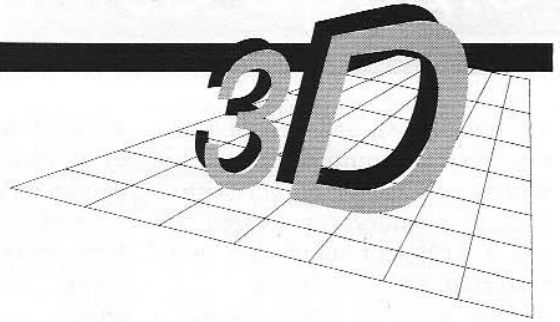
work prevented any major anguish on either occurrence. When I purchased *Comicsetter* on its first appearance, (v. 1.0a) it cost \$145 with additional 2-disk sets of clip art costing \$45. I've since seen it advertised for well under \$100 but the clip art is in short supply - my favourite software

merchant has ordered me some from the U.S. If you enjoy the intricacies of DTP, then *Comicsetter* could well be for you.

And remember, folks, as they say in the comics... Up-up-And-AWAA-AAAY!!



Design 3D vs Modeller 3D



Designing objects for use in 3D animation can be a real chore. Here's two programs to make life easier - but which is better?

George Kimpton checks them out.

► When I was asked to try and compare these two packages I thought "this will be a breeze". They both seemed to be similar and both set out to do the same thing. Added to this, I had just discovered the wonders of *Sculpt 4D* and become really keen on 3D rendering.

How wrong I was. The differences between these two software packages only strengthened my own opinion that retailers or software houses need to provide somewhere that you and I can sit down and try out programs before buying. (Have a read of the inset.)

Both these programs are good, within the limitations of what you have a right to expect for the cost; but they are different and you may need to choose carefully.

For some they may not be sophisticated enough and you may be wise to consider purchasing something like *Sculpt 4D* or *Turbo Silver* straight off. However for those who would like to dabble in 3D drawing at low cost or are aficionados of *VideoScape*, both programs will be useful.

Both are designed to complement and provide 3D objects for VideoScape users by different means. No copy protection is used in *Modeler* but *Design* requires a word from the manual each time it is booted, a fact that I found annoying at times. It can be a nuisance to have to keep the handbook around all the time after you become familiar with the program.

The manual and tutorials with *Modeler 3D* are good and easily followed. The manual for *Design*

3D however leaves much to be desired. One word of warning, the icon driven tutorial in the *Design 3D Tools Disk* is to be treated with caution. I have tried two different versions and in each the cursor seemed to have a mind of its own, threatening to rearrange my Workbench by running wild.

I hastily crashed my computer when the cursor picked up the hard disk trashcan and galloped across the screen taking all before it. I still don't know what

Writer's Opinion

How often have you felt the urge to buy software based on the strength of a glowing two hundred word product description on the back of the packet that promises much.

Succumbing to temptation you hastily hand over your hard earned cash and race for the door with the package clasped in your hot little hand. Arriving home in great anticipation you slip the disk in the drive and boot up. Some hours later muttering black imprecations and tearing your hair out in handfuls you kick the cat and scowl at all those around you.

You curse the impulse that drove you to purchase that software and you even consider getting in touch with consumer affairs about false advertising. Let me make one thing clear - I am not accusing anyone of false advertising. The problem is what is not said in the product description rather than what is said.

It isn't that the program is faulty it's just that so often it doesn't do what you want or expect. Many are moved to speak out strongly and rightly so against pirating of software but at least those copies, though illegal, give you a chance to see if the program lives up to expectations and then, being an honest upright citizen, to decide to buy it.

Quite frankly I firmly believe that if software could be tried out more easily before purchase there would be less pirating and more purchases.

- George Kimpton

the tutorial is supposed to show me. System requirements are for Workbench 1.2 or higher with 1 meg of memory for *Design 3D* and a 512k minimum, but more preferred, for *Modeler 3D*.

One point of interest here, I have a Fat Agnus and five Megabytes of memory, but *Modeler* told me I had insufficient memory for adding polygons on a number of inexplicable occasions. Maybe I was trying to do something stupid because it worked fine otherwise.

Differences

In terms of operating capabilities and procedures this is where they part company however, for beyond this point both programs can differ quite a lot.

Design 3D supports only the *VideoScope* format for loading objects whereas *Modeler 3D* will load *Aegis Draw* and *Sculpt 3* and 4D files. *Sculpt* objects, when rendered in *Design 3D* end up with some uncoloured triangles due to a peculiarity of the program. This can be corrected fairly easily.

Both save in *VideoScope* format and in *Aegis Draw* format. *Design 3D* also allows for exporting to *Professional Draw* and *Page* probably under the guise of the *Aegis Draw* format. It should be possible to use the program *Interchange* by Syndesis to allow the transfer of objects created in these programs to *Sculpt* and *Turbo Silver*.

Orthographic Projection is the format for displaying the object under construction. The screens use different layouts and different means are provided to enlarge or resize any of the three projection windows to full screen display in each program.

Modeler makes use of multiple layers or clipboards to allow

manipulation of objects or parts of objects. Selected polygons can be cut or copied to other layers, worked on and then brought back. In this way it is possible to move polygons around and change them even though *Modeler* tells you that you cannot.

With *Design 3D* I'm afraid you only have one screen and a somewhat clumsy means of selecting polygons which limits your manipulation of anything. As with most of these programs points must be laid down in two of the three windows to fix them. Each uses a different method of laying down points and setting planes of constructed objects.

Design 3D will out guess you sometimes deciding for itself where the points should be in the second window. Points or vertices as they are called can be re-selected by various means, singularly or in groups, and moved to new locations.

By this means you can move polygons in *Design 3D* but *Modeler* polygons remain attached by stretched bands to the original location giving an extrusion effect.

Solids

Creating solids is different in both programs. *Modeler* allows you to create polygons which can then be locked together. These shapes can then be mirrored to create a solid. Also, *Modeler* allows you to create a base plane which can then be extruded. The alternative is to create a template if an object is symmetrical and lathe it.

Design 3D on the other hand allows spinning of polygons for symmetrical shapes or allows you to create both ends of an object and then automatically join them to make a solid. However this only works if the two ends

have an identical number of sides and points. These solids can then be distorted or reshaped by selecting points and moving them or the whole polygon.

Modeler does not allow the drawing of lines to join existing planar objects to make solids. The construction techniques of both programs are one of the major differences. It is a pity that these different methods are not combined in both programs giving us the best of both worlds.

The rendered 3D display is part of the main screen in *Design 3D*. *Modeler* initially provides a large overlay screen display which can be sized and left in the lower right corner of the screen while work goes on elsewhere.

One thing I found very confusing was to mentally try to come to grips with the axis of a rendering object in the 3D window for *Design 3D*. Just when you thought you were looking at the rendering from one direction it would suddenly become obvious that you were viewing it from the opposite direction.

Confusion can reign in *Modeler* too in the 3D window as it displays only the selected side of the object being viewed to save on memory usage. This means if you happen to be looking at the back of a face you will see blank screen instead of that face. That face can only be seen when you are looking at the selected side.

Changing of the viewing axis of the rendered object is done by cursor movement in the 3D window in both cases. The screen refreshes showing the new axis perspective.

Drawing Tools

The approach to drawing or constructing objects is very different in each program. *Design*

3D uses the familiar icon tool bars on each side of the screen similar to those used in drawing programs. It is relatively easy to become familiar with the uses of each tool. Colours and line types are selectable but the means of manipulation is limited compared to standard drawing programs. However it is very easy to start building up an object including 3D text.

Modeler on the other hand, while using a single simplified tool bar, constructs by points and polygons and using pull down menu items follows a reasonably complex ritual to create and move points or polygons.

These routines require a little thinking and understanding to come to grips with but on the whole I found *Modeler* a better program to work with. A limited range of solid objects is available through menu selection in *Modeler*. Admittedly it does not have freehand drawing or arcs, stretch boxes and circles but I found myself more at home with it than *Design 3D*.

Maybe it's because I have been working with *Sculpt 4D* lately and maybe anyone who uses *DPaint* frequently will be more at home with *Design* because of its format. *Modeler* seems to sidestep the familiar drawing tools considering them unnecessary frills as we are really concerned with solid modeling here, not pretty pictures.

One thing particularly noticeable is that *Design* has text facilities and a basic font editor whereas *Modeler* does not have any provision for text. The font provided however is of a pretty basic format.

Lighting and shading of faces is possible only in *Design 3D* where you have some control over the selection and placing of

lights. Shading in *Modeler* is left to when the object is imported into *VideoScape*.

Animation is provided for in both programs. *Design 3D* uses a text file to produce simple movement. Practically no instruction is given in how to do it though, just short examples and a few lines in the manual as an afterthought. *Modeler* does devote a few pages to the subject but generally the impression is: leave it to *VideoScape 3D* for animation.

Conclusion

Both programs will have their uses in constructing third party

objects for *VideoScape 3D*, *Sculpt Animate 3* or *4D* and *Turbo Silver*. Cost wise they are a good introduction for beginners but you only get what you pay for.

The serious *modeler* must look to *Sculpt* or *Turbo Silver* for really top class modeling of 3D objects. Both these programs have superior construction techniques available combining the best of both *Design 3D* and *Modeler 3D*.

Before buying either *Design 3D* or *Modeler* try and get a test run to see which construction method you prefer, otherwise you may end up kicking the cat. □

Comparison Table / Feature List

	Design3D	Modeler3D
Memory Requirements	1 Meg minimum	512 k (more pref)
Workbench	1.2 or more	1.2 or more
Manual	Skimpy	Detailed,easy reading
Tutorials	Poor	Good
Display - Orthographic	3 windows + 3D	Multiplane + 3D
Working Area	3 Windows	8 Plane +
Icon Tools	Colour flood fill Freehand drawing Rotate 3D Display Display 3D Solid Draw Rectangle Draw Circle/Ellipse Draw Arc Clone Spin Connect Text Point Select Polygon Select Object Select New Object Nodes Grid	Curve Tool Add Polygon Point Mode Polygon Mode Volume Select Cut Delete Move Points Move Display Undo, cut, copy Lock Plane, scale Co-ordinates Layer Gadget Lathe, rotate Extrude, translate Mirror, merge points Flip, remap, quantise Merge, array, Sphere Plane, Box, Tube Set point, set colour Split, merge, flip Merge distance, etc.
Other Tools (Menu)		

Pushing Postscript

If your Postscript printer is acting up, or you need to extract that additional ounce of power, it could be time to learn the language that makes your laser tick.

► For quite some time after I received my AST TurboLaser Postscript printer, I was under the impression that it was a bit flaky, in that sometimes it just wouldn't print the Postscript files I sent to it, either via a Desktop Publishing program or via the serial port. In this respect it was the same as an Apple Laserwriter I had been using from time to time, and I was resigned to Postscript printers being unreliable.

I'd asked everyone I could find who might have a clue whether I was doing something wrong and neither techies nor hardware gurus nor customer support anywhere could help me out. Until...

One day in about the 7th sub-directory of some disk from somewhere I discovered an article on the Amiga and Postscript by Bryce Nesbitt, one of the original Amiga gurus, and he addressed and solved this very problem, for which I am eternally grateful, as will other Amiga/Postscript users who read this article.

I'll cannibalise his article here, with all due respect, relating to this particular problem of reliability and add what I've found out as well by experience and from other sources mentioned at the conclusion of this article.

What is Postscript?

At this point, anyone interested in finding out more about Postscript could have a look at the article on "Postscript Programming" in Megadisc 17, and also at the bunch of articles on DTP in Megadisc 11.

But in brief: except in the "Diablo Emulation" mode, the LaserWriter, the QMS PS-800 and other similar PostScript laser printers understand only their built-in native language, PostScript, developed by Adobe Systems of Palo Alto, California as a page-description language with many powerful built-in graphics functions.

PostScript is similar in some ways to Forth, so that Forth fanatics should have an easy time learning it. PostScript programs are straight ASCII text written with almost any word processing program and sent over a simple serial line to the LaserWriter.

Entire program files or procedures can also be sent as individual lines of text in PRINT statements from Basic or almost any language. Normally you have a program such as "Professional Page" which is designed as a "front end" for easy manipulation of pages which are then sent to the printer and interpreted within it according to the procedures of Postscript.

You can also go into "interactive" mode with Postscript as mentioned below, which requires that you run a "communications" program for exchange of information over the serial cable. Using a text editor (like Ed in the CLI), you can devise a program and then send it in one hit to the printer.

Sorting Out Baud Rates and Options

The problem of talking to a Postscript laser printer (referred to as a "laser" from now on) revolves around the concept of "handshaking". This simply means how the computer and the printer acknowledge each other. Now most lasers are set up for the standard IBM computer/printer set-up, and it doesn't necessarily suit the Amiga.

Your first step is to find out your current set-up, and this should be available on the test page that most postscript printers output whenever you turn them on. For example, my AST's test page shows the variety of fonts available, some grey-scale strips, the Postscript Version Number, and most importantly here, the "Interface".

In the case of my printer, now that I have made the changes mentioned in this article, it says:

```
9 pin:
Batch, Serial, 9600 Baud, Option 0
25 pin:
Batch, Serial, 19200 Baud, Option 0
```

You can also prepare a Postscript program which will ask the printer about the baud rate and option and print it out for you. Using a text editor such as "ed" or "notepad", prepare the following PostScript program:

```
/Helvetica findfont 20 scalefont setfont
40 200 moveto
statusdict begin
```



```

25 sccbatch
(The Options number is ) show
10 string cvs show
(. The baud rate is ) show
10 string cvs show
(.) show
end
showpage

```

From the CLI, copy this text file to the serial port with a command such as "copy textfile ser:". The printer should print a sheet of paper. If nothing seems to happen after 30 seconds, cycle the power to the printer, wait, and try again.

The output should look like this:

```

The Options number is 0.
The baud rate is 9600.

```

What Those Options Mean

If your Option number is in the range of 0-3, you probably are ok. If it is in the range of 4-7, you definitely have a problem, and must make a change for reliable operation with the Amiga. The Options can be interpreted as follows:

```

0 or 4 Ignore parity
1 or 5 Check for Odd parity
2 or 6 Check for Even parity
3 or 7 No parity

```

Codes 0-3 specify Xon/Xoff handshake. Codes from 4-7 indicate "DTR" handshake (DTR goes low when the printer's buffer is full). For use with the Amiga, you should specify mode = 0. Higher numbers may be used by some printers, but 0 should be the correct setting for the Amiga. Originally my printer was set up for Option 4, and that's why it was temperamental.

Steps for Changing Your Options and Baud Rate

All PostScript implementations version 38 and above allow the 25 pin RS232 channel to be reprogrammed to a different baud rate and hand-

shaking. The "9600" switch setting and Options can both be affected by the reprogramming.

Note that some people do use the Parallel Port for talking to their laser printer and it works fine. Commodore (via Bryce Nesbitt) does recommend using the serial port however, simply because each device can talk more easily to each other.

In order to change to 19200 baud (twice as fast and better) and Option 0 do the following:

1. Set the Amiga's serial baud rate to 1200 using Preferences and turn the printer switch to 1200.
2. Create the following file in a text editor and save it as, say, LASER_19200_0

```

serverdict begin 0000 exitserver
statusdict begin
25 19200 0 setsccbatch
end

```

3. Send it to your laser printer by entering in the CLI, for example: COPY LASER_19200_0 SER: This will permanently change the baud rate and options (until you do it again, that is) to 19200 Baud and Option 0.
4. Wait at least one minute for the printer to time out and then go idle. On the Apple LaserWriter the amber light on the side panel will stop flashing when the printer is idle; on the AST TurboLaser there will no longer be a flashing "6".

5. Reset your Amiga's baud rate, again using Preferences, and turn the printer switch to 9600.
- You don't want to perform this operation very often. What the above procedure does is to change a couple of numbers held in a special kind of memory called an EEROM (Electrically Erasable Read Only Memory) built into the printer which holds all the "persistent parameters" used by the printer.

These parameters include baud rate of the 25 pin RS232 connector,

handshaking, default paper size, printer "Name", password (when used in a networking system) and others.

Each memory location in the EEROM can be written to only about 5000 times (although it can be read from indefinitely), so frequent changes (ie. writing to the EEROM) may hasten EEROM failure somewhere down the road.

Getting Interactive with Postscript

Copying files to SER: is a limited way of talking to the printer. If you wish to experiment with PostScript, it is much better to use PostScript's INTERACTIVE MODE. Any terminal emulator or modem program should work for this.

Set the baud rate, parity and stop bit settings to match those of the printer, then follow the instructions:

Type one CTRL-D to the printer (hold "CTRL" and press "D", ie, ^D). This will end any current job the printer is working on.

Next type the word "executive" followed by a RETURN. If all works well you will be in PostScript's interactive mode, and should see an appropriate copyright message. To read out the current settings, type the following:

```

^D
executive
PostScript(r) Version 47.0
Copyright (c) 1984, '85, '86, '87
Adobe Systems Inc.
Copyright (c) 1981 Linotype All
Rights Reserved.
PS>
PS>statusdict begin
PS>
PS>25 sccbatch
PS>=
0 ;<- mode byte
PS>=
9600 ;<- baud rate
PS>
PS>end

```

PS>quit
^D

This sequence prints out the Options and baud rate as did the program listed previously.

What it Means

The "statusdict begin" informs Postscript you wish to access functions from the special status dictionary. The "25 scbatch" line first pushes the number 25 on the stack, then executes "scbatch" (25 is a parameter to scbatch, indicating you want information about the 25 pin RS-232 port). Scbatch will leave two numbers on the stack.

The topmost will be the serial mode byte, the next will be the baud rate. The "=" command reads the top number from the stack and prints it to your terminal. In this case, the printer was configured for mode 0 and a

baud rate of 9600.

Typing CTRL-T at any time will produce a status report from the printer. CTRL-C will abort any currently executing job.

Note that while you're in interactive mode you can upload (send to the printer) a previously prepared Postscript text file using the ASCII SEND feature of the communications program. See more on this in the "Postscript Cookbook" mentioned below.

To leave Interactive mode at any time, use the command QUIT as shown in the listing above.

Above all, experiment!

Further References

Adobe Systems, Inc.
PostScript Language Reference Manual. Addison-Wesley, Reading, Mass., 1985. Adobe Systems, Inc.
PostScript Language Tutorial and

Cookbook. Addison-Wesley, Reading, Mass., 1985.

PostScript is a registered trademark of Adobe Systems, Inc.

A gentleman called S. Anthony who runs S. Anthony Studios has been responsible for a number of very useful Postscript-related programs for the Amiga, including "Laser_Up", "Laser_Print", "Laser_Plot" and more. He also includes a lot of tutorial material in his documentation and if you're interested in Postscript and the Amiga, get more info from:
889 De Haro St
San Francisco, CA 94107 USA.
Technical Help: (415) 8266193.

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► Professional Amiga User magazine is fully desktop published by people who use the Amiga professionally every day. However, we are not experts at everything! Your contributions are welcome.

We would prefer to hear from others like ourselves who can share real hands-on experience in using the Amiga commercially. Of course, if you're an avid home user with a special skill at using a particular software package, you are also qualified to write.

We can accept material via modem - this is the preferred method. You can also send in a disk containing a clean ASCII text file - that is, one without any special formatting. Pictures, screen-grabs or illustrations should be included separately and clearly labelled. The most important thing to include is your day time tele-

phone number.

If you're not sure of the style of writing, try reading articles by other regular contributors and adopt a similar style and approach. Keep in mind, most of our readers are endeavouring to push the Amiga to its limits.

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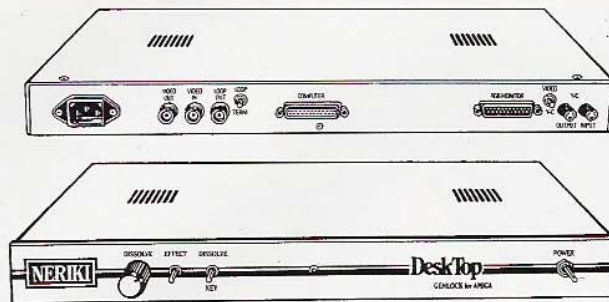
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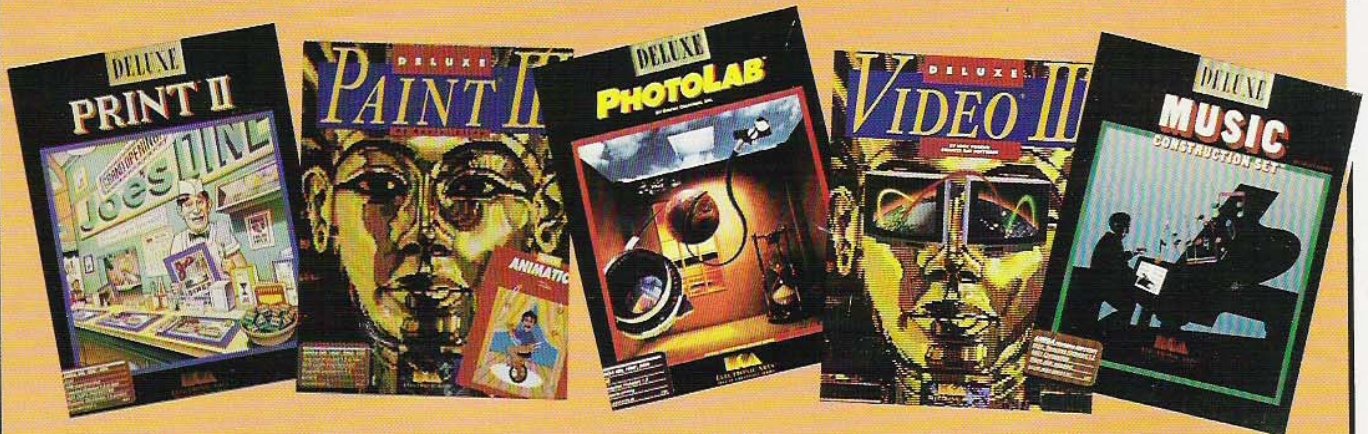
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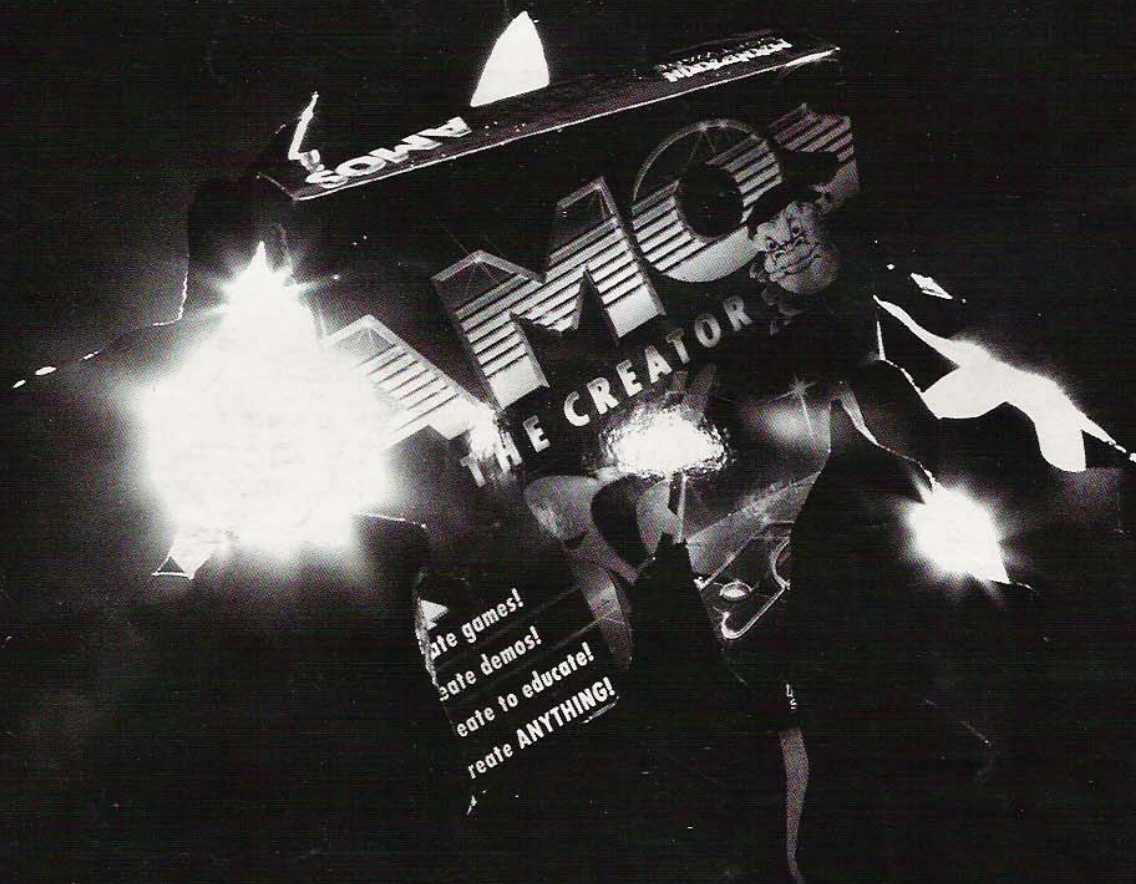
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